

United States
Environmental Protection
Agency

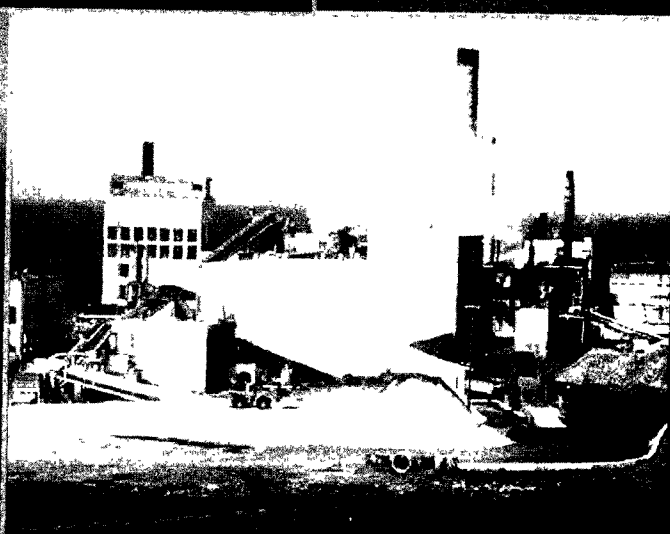
Office of Pollution
Prevention and Toxics
(7408)

EPA 745-R-97-005
April 1997



1995 Toxics Release Inventory

Public Data Release



PUBLIC ACCESS TO THE TOXICS RELEASE INVENTORY

TRI Reports and Data Products

Product		Supplier	Contact Information	Order Information
1995 TRI Public Data Release (annual report)		U.S. EPA EPCRA Hotline	(800) 535-0202 Fax Document Requests Only: (703) 412-3333 Hours: 9:30 a.m. - 7:30 p.m. (Eastern Time)	EPA 745/R-97-005 (Free)
1995 State Fact Sheets				EPA 745/F-97-001 (Free)
1987-1995 TRI CD-ROM		U.S. GPO	(202) 512-1800	S/N 055-000-00556-7 (\$43)
		NTIS	(703) 487-4650 or (800) 553-6847	PB 96503214 (\$45)
1995 State Data Files on Disk	dBASE Lotus	U.S. GPO	(202) 512-1530	\$15-\$25 / state Up to 67 disks for all states
TRI Information Kit		NCEPI	(800) 490-9198 (513) 489-8180 Fax: (513) 489-8190	EPA 749-F-94-002 (Free)

Note: The 1987-1995 CD-ROM, containing the latest available data, will be published in August 1997.

Accessing TRI Data Online

Data from Online Providers	Internet Address	Special Notes
Right to Know Network (RTKNET) – Provides public access to TRI and related environmental data bases to community groups concerned about toxics. For more information, call (202) 797-7200.	ftp://ftp.rtknet.org gopher://gopher.rtknet.org http://www.rtk.net	Set computer parameters to 8,N,1 and log in as "public." No charge for Internet access. Direct access by modem at (202) 234-8570; phone charge may apply.
National Library of Medicine (NLM) – Offers state of the art, user friendly searching of complete TRI data base. For more information, call (301) 496-6531.	toxnet.nlm.nih.gov	\$18-\$20 per hour charge. Password required.
U.S. EPA Internet Server – Access a variety of reports, data files, and TRI information from EPA. For more information, call TRI-US at (202) 260-1531.	ftp://ftp.epa.gov gopher://gopher.epa.gov http://www.epa.gov	TRI-specific information is available at: http://www.epa.gov/opptintr/tri

1995

Toxics Release

Inventory

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U.S. Environmental Protection Agency

Office of Pollution Prevention and Toxics (7408)

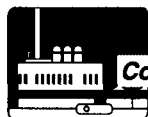
Washington, DC 20460

CONTENTS

1995 TOXICS RELEASE INVENTORY — OVERVIEW	i
Chapter 1: Introduction	i
Chapter 2: TRI Reporting	i
Who Must Report to TRI?	i
What Must Be Reported?	ii
What are the Benefits and Limitations of the Data?	ii
How Can I Obtain Additional TRI Information?	ii
Chapter 3: TRI in Perspective	ii
33/50 Program	iv
International Aspects of TRI	iv
Chapter 4: 1995 Toxics Release Inventory	v
On-Site Releases	v
Off-site Transfers	vi
Releases and Transfers of Newly Added Chemicals, 1995	vi
Releases and Transfers by State, 1995	vii
Releases and Transfers by Industry, 1995	viii
Chemical-Specific Release Data, 1995	ix
OSHA Carcinogen Releases, 1995	ix
Prevention and Management of TRI Chemicals in Waste	x
Source Reduction Activities, 1995	xi
Chapter 5: Year-to-Year Comparisons	xii
Change in Total Releases by State, 1988-1995	xiii
Change in Total Releases by Industry, 1988-1995	xiii
Change in Total Releases by Federal Facilities, 1994-1995	xiii
Change in Total Releases by Chemical, 1988-1995	xiii
33/50 Program Chemicals	xiv
TRI Chemicals in Waste, 1991-1997	xv
Further Information	xv

OVERVIEW — EXHIBITS

Table 1.	Current TRI Expansion Activities	iii
Table 2.	1995 TRI Releases	v
Table 3.	1995 TRI Transfers	vi
Table 4.	1995 TRI Releases of Newly Added Chemicals	vii
Table 5.	1995 TRI Transfers of Newly Added Chemicals	vii
Table 6.	Top 10 Chemicals for Total Releases, 1995	ix
Table 7.	Top 10 OSHA Carcinogens for Total Releases, 1995	ix
Table 8.	Top 10 Chemicals for Total Production-related Waste, 1995	xi
Table 9.	Quantities of TRI Chemicals in Waste, 1995 (Actual) - 1997(Projected)	xi
Table 10.	Source Reduction Activity, 1995	xi
Table 11.	Change in Releases and Transfers, 1994-1995	xii



Contents

Table 12.	Top 10 Chemicals for Decreases in Total Releases, 1988-1995	xiii
Table 13.	Top 10 Chemicals for Increases in Total Releases, 1988-1995	xiii
Table 14.	33/50 Program Chemicals: Releases and Transfers, 1988, 1990, 1994, 1995	xiv
Table 15.	Quantities of TRI Chemicals in Waste, 1991-1995	xv
Figure 1.	Distribution of Releases, 1995	v
Figure 2.	Distribution of Transfers, 1995	vi
Figure 3.	Waste Management Hierarchy	x
Figure 4.	Quantities of TRI Chemicals Managed in Waste, 1995	x
Figure 5.	Change in Total Releases, 1988-1995	xii
Figure 6.	Reduction in Releases and Transfers: 33/50 Program Chemicals vs. Other TRI Chemicals	xiv
Box 1.	Who Must Report to TRI?	i
Box 2.	What Must Be Reported?	ii
Box 3.	Standard Industrial Classification (SIC) Codes	viii
Box 4.	17 Priority Chemicals Targeted by the 33/50 Program	xiv
CHAPTER 1 — INTRODUCTION / PURPOSE		1
Two-Phase Approach to Release of 1995 Data		1
A Roadmap to This Report		2
CHAPTER 2 — TRI REPORTING		3
What is the Toxics Release Inventory?		3
Who Must Report?		4
What Must be Reported?		4
What Are the Benefits and Limitations of the Data?		4
How Can I Obtain Additional TRI Information?		6
CHAPTER 3 — TRI IN PERSPECTIVE		7
TRI Expansion		7
Phase 1: Chemical Expansion		8
Phase 2: Facility Expansion		9
Phase 3: Chemical Use Reporting		10
Future TRI Modifications		11
33/50 Program		13
International Aspects of TRI		14

CHAPTER 4 — 1995 TOXICS RELEASE INVENTORY 15

TRI Releases and Transfers	15
What to Consider When Using TRI Data	15
Toxicity of the Chemical	15
Exposure Considerations	16
1995 National Overview	18
“Form A” Reporting	20
TRI Chemical Expansion for the 1995 Reporting Year	20
1995 TRI Data by State	23
1995 TRI Data by Industry	27
1995 TRI Data by Federal Facilities	31
1995 TRI Data by Chemical	34
TRI Chemical Expansion in the 1995 Reporting Year	34
Chemical-Specific Data Tables for All TRI Chemicals	37
Use, Toxicity, and Environmental Fate Information	37
Metals and Metal Compounds	41
OSHA Carcinogens	42
Releases and Transfers of All TRI Chemicals	48
Prevention and Management of TRI Chemicals in Waste	49
Waste Management Information Collected	49
Source Reduction Activities	52
Quantities of TRI Chemicals in Waste	54
National Overview	54
Chemical-Specific Waste Management Data	55
Waste Management Data by State	57
Waste Management Data by Industry	58
Waste Management Data by Federal Facilities	59
Chemical-Specific Data Tables	59

CHAPTER 4 — EXHIBITS

Table 4-1.	TRI Releases, 1995	19
Table 4-2.	TRI Transfers, 1995	19
Table 4-3.	TRI Releases and Transfers, Newly Added Chemicals Compared to Other TRI Chemicals, 1995	21
Table 4-4.	TRI Releases by Release Type, Newly Added Chemicals Compared to Other TRI Chemicals, 1995	23
Table 4-5.	TRI Transfers by Waste Management Activity, Newly Added Chemicals Compared to Other TRI Chemicals, 1995	23
Table 4-6.	TRI Releases by State, 1995	24
Table 4-7.	TRI Transfers by State, 1995	25
Table 4-8.	TRI Releases of Newly Added Chemicals Compared to Other TRI Chemicals for Top 10 States with Largest Total Releases, 1995	26
Table 4-9.	TRI Transfers of Newly Added Chemicals Compared to Other TRI Chemicals for Top 10 States with Largest Total Transfers, 1995	27

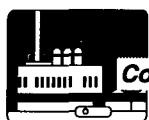


Table 4-10.	TRI Releases by Industry, 1995	28
Table 4-11.	TRI Transfers by Industry, 1995	29
Table 4-12.	TRI Releases of Newly Added Chemicals Compared to Other TRI Chemicals, by Industry, 1995	30
Table 4-13.	TRI Transfers of Newly Added Chemicals Compared to Other TRI Chemicals, by Industry, 1995	31
Table 4-14.	TRI Releases from Federal Facilities, 1995	32
Table 4-15.	TRI Transfers from Federal Facilities, 1995	32
Table 4-16.	TRI Releases from Federal Facilities, by Federal Agency, 1995	32
Table 4-17.	TRI Transfers from Federal Facilities, by Federal Agency, 1995	33
Table 4-18.	Top 20 TRI Chemicals with the Largest Releases, among Newly Added Chemicals, 1995	35
Table 4-19.	Top 20 TRI Chemicals with the Largest Total Releases, 1995	38
Table 4-20.	TRI Releases of Metals and Metal Compounds, 1995	40
Table 4-21.	TRI Transfers of Metals and Metal Compounds, 1995	41
Table 4-22.	TRI Releases to Air, Water, and Land of OSHA Carcinogens, 1995	46
Table 4-23.	Facilities and Forms Reporting Source Reduction Activity, by Category, 1995 ..	53
Table 4-24.	Actual and Projected Quantities of TRI Chemicals in Waste, 1995-1997	54
Table 4-25.	Actual and Projected Quantities of TRI Chemicals in Waste, Newly Added Chemicals Compared to Other TRI Chemicals, 1995-1997	55
Table 4-26.	Quantities of TRI Chemicals in Waste, Newly Added Chemicals Compared to Other TRI Chemicals, 1995	56
Table 4-27.	Quantities of TRI Chemicals in Waste by Waste Management Activity, Newly Added Chemicals Compared to Other TRI Chemicals, 1995	56
Table 4-28.	Quantities of TRI Chemicals in Waste by Waste Management Activity, Newly Added Chemicals Compared to Other TRI Chemicals, Excluding n-Hexane, 1995	57
Table 4-29.	Top 20 TRI Chemicals with the Largest Total Production-related Waste, 1995	58
Table 4-30.	Actual and Projected Quantities of TRI Chemicals in Waste, by State, 1995-1997	60
Table 4-31.	Actual and Projected Quantities of TRI Chemicals in Waste, by Industry, 1995-1997	68
Table 4-32.	Actual and Projected Quantities of TRI Chemicals in Waste, by Federal Agency, 1995-1997	72
Table 4-33.	Releases and Transfers of All TRI Chemicals, 1995	74
Table 4-34.	Quantities of TRI Chemicals in Waste, by Chemical, 1995	92
Figure 4-1.	Distribution of TRI Releases, 1995	19
Figure 4-2.	Distribution of TRI Transfers, 1995	19
Figure 4-3.	Waste Management Hierarchy	49
Figure 4-4.	Waste Management Information Collected under TRI.	51
Figure 4-5.	Management of TRI Chemicals in Waste, by Activity, 1995	54

Box 4-1.	An Explanation of Releases	16
Box 4-2.	An Explanation of Transfers	17
Box 4-3.	Number of Chemicals Added for the Reporting Year 1995	21
Box 4-4.	Basis of OSHA Carcinogen Listing for Individual Chemicals	43
Box 4-5.	What Does This Waste Management Information Represent?	50
Box 4-6.	What is Source Reduction?	53

CHAPTER 5 — YEAR-TO-YEAR COMPARISON OF TRI DATA 113

Introduction	113
“Core” Chemicals for Year-to-Year Comparisons	114
Reporting of Ammonia, Hydrochloric Acid, and Sulfuric Acid	114
Threshold Changes	116
New Transfer Types	116
TRI Releases and Transfers, 1994-1995 and 1988-1995	117
National Overview	117
Total Releases	117
Total Transfers	118
Facilities and Forms	120
States, Industries, and Chemical-Specific Data, 1988-1995	120
Change in Releases and Transfers by State	120
Change in Releases and Transfers by Industry	132
Change in Releases and Transfers by Federal Facilities (1994-1995)	132
Reasons for Change	133
Change in Releases and Transfers by Chemical	133
33/50 Program Chemicals	140
Waste Management Data, 1991-1995	146
Chemical-Specific Data Table	149

CHAPTER 5 — EXHIBITS

Table 5-1.	Comparison of TRI Releases and Transfers, 1994-1995	117
Table 5-2.	Comparison of TRI Releases and Transfers, 1988, 1993-1995	118
Table 5-3.	Change in Total TRI Releases by State, 1988-1995	121
Table 5-4.	TRI Releases and Transfers by State, 1988, 1993-1995	122
Table 5-5.	Change in Total TRI Releases by Industry, 1988-1995	133
Table 5-6.	TRI Releases and Transfers by Industry, 1988, 1993-1995	134
Table 5-7.	Comparison of Total TRI Releases from Federal Facilities by Agency, 1994-1995	138
Table 5-8.	Comparison of TRI Transfers from Federal Facilities by Agency, 1994-1995	138
Table 5-9.	Top 20 TRI Chemicals for Decreases in Total Releases, 1988-1995	140
Table 5-10.	Top 20 TRI Chemicals for Increases in Total Releases, 1988-1995	141
Table 5-11.	Releases and Transfers of 33/50 Program Chemicals Compared to Other TRI Chemicals, 1988, 1990, 1994, 1995	142



Table 5-12.	TRI Releases and Transfers of 33/50 Program Chemicals, 1988, 1990, 1994, 1995	144
Table 5-13.	Quantities of TRI Chemicals in Waste, 1991-1995	148
Table 5-14.	Actual and Projected Quantities of TRI Chemicals in Waste, 1991, 1994-1997 ..	149
Table 5-15.	Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995	150
Figure 5-1.	Distribution of TRI Releases, 1988-1995	119
Figure 5-2.	Releases and Transfers of 33/50 Program Chemicals Compared to Other TRI Chemicals, 1988-1995	142
Figure 5-3.	Percentage Change in Releases and Transfers of 33/50 Program Chemicals, 1988-1995	143
Box 5-1.	An Explanation of the Modification to the Reporting Requirements for Aqueous Ammonia and the Delisting of Ammonium Sulfate (Solution) and Ammonium Nitrate (Solution)	115
Box 5-2.	An Explanation of the Modification to the Reporting Requirements for Hydrochloric and Sulfuric Acid	116
Box 5-3.	Reasons Facility Release and Transfer Estimates Change	139

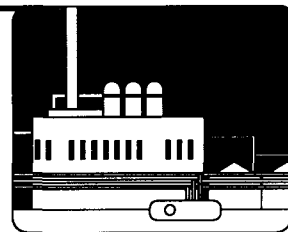
APPENDICES

APPENDIX A — EPA REGIONAL OFFICE AND STATE TRI CONTACTS	A-1
EPA Regional Section 313 Coordinators	A-1
State TRI Public Contacts	A-3
APPENDIX B — PUBLIC ACCESS TO THE TOXICS RELEASE INVENTORY	B-1
Accessing Toxics Release Inventory (TRI) Products and Services	B-2
Assistance Services	B-2
Federal Depository Libraries	B-3
Electronic Media	B-3
Online Services	B-4
Printed Media	B-6
APPENDIX C — TRI FORM R FOR 1995	C-1

1995

Toxics Release Inventory

Overview



CHAPTER 1: INTRODUCTION

The Toxics Release Inventory (TRI) is a publicly available database that contains specific toxic chemical release and transfer information from manufacturing facilities. This document is part of a broad initiative by the Environmental Protection Agency (EPA) to provide the public with information on the release and transfer of these chemicals. While not all the information contained in the TRI will be found in this document, many significant pieces of TRI data are presented.

The 1995 Public Data Release is being conducted in two phases. This document represents the results of the first phase. The purpose of this phase is to summarize the basics of the 1995 data and discuss significant nationwide trends. The report includes such topics as information on releases, transfers, and on-site waste management practices by state, industry type (including federal facilities), and chemicals, pollution prevention information, and presents an initial comparison of the 1995 data against the two previous years (1993 and 1994) and 1988 (the first year data was analyzed). A more compre-

hensive report will be issued in the Fall of this year (1997). This second report will analyze the TRI data by industry sector and will provide some of the more detailed analysis found in past year's data release reports.

CHAPTER 2: TRI REPORTING

Chapter 2 presents a general overview of TRI reporting. More complete information can be found in Chapter 2 of this report.

Who Must Report to TRI?

A facility must report to TRI if it:

- Conducts manufacturing operations within Standard Industrial Classification (SIC) codes 20 through 39;
- Has 10 or more full-time equivalent employees; and
- Manufactures or processes more than 25,000 pounds or otherwise uses more than 10,000 pounds of any listed chemical during the calendar year.

Box 1.

What Must Be Reported?

Information reported by facilities includes:

- Amounts of each listed chemical released to the environment at the facility;
- Amounts of each chemical shipped from the facility to other locations for recycling, energy recovery, treatment, or disposal;
- Amounts of each chemical recycled, burned for energy recovery, or treated at the facility;
- Maximum amount of chemical present on-site at the facility during the year;
- Types of activities conducted at the facility involving the toxic chemical;
- Source reduction activities;
- Environmental permits held; and
- Name and telephone number of a contact person.

Box 2.

What are the Benefits and Limitations of the Data?

The TRI program has given the public unprecedented direct access to toxic chemical release and transfer data at the local, state, regional, and national level. Responsible use of this data can help:

- The public to identify potential environmental concerns, gain better understanding of potential risks, and work with industry and government in addressing concerns and risks.
- Federal, state, and local governments to compare chemical release and transfer data across facilities or geographic areas, evaluate existing environmental programs, establish regulatory priorities, and track pollution control and waste reduction progress.
- Industry to obtain an overview of the use and release of toxic chemicals, identify and

reduce costs associated with toxic waste, identify promising areas of pollution prevention, establish reduction targets, and to measure and document progress toward reduction goals.

TRI data alone cannot provide a complete picture about risk potential. While the TRI data are a useful starting point, many other factors must be evaluated prior to making a determination of potential risk to public health or the environment. These factors should include the toxicity of the chemical, the extent of exposure, life cycle of chemicals used, the type of release, population densities, and the conditions of the environment. For example, small releases of highly toxic chemicals may present a greater risk than large releases of less toxic chemicals. Direct releases, such as air emissions, may pose a greater threat to human health and the environment than more contained releases, such as underground injection.

How Can I Obtain Additional TRI Information?

Information about accessing the TRI database is provided on the inside front cover of this book, as well as in Appendix B. The TRI User Support Service (202) 260-1531 can provide assistance in accessing and using the TRI data. To request copies of TRI and EPCRA documents or to obtain further information about the program, contact the toll-free Emergency Planning and Community Right-to-Know Information Hotline at 1-800-424-9346.

CHAPTER 3: TRI IN PERSPECTIVE

The TRI program is a dynamic one. Since its inception over 10 years ago, the program has seen many changes aimed at improving the public's access to information on chemical releases and transfers in their communities and making reporting easier for facilities. Table 1

CURRENT TRI EXPANSION ACTIVITIES	
TRI Expansion Activities	Summary Description
Phase 1: Chemical Expansion	<p>On November 30, 1994, EPA added 282 chemicals and chemical categories to the TRI. This expansion of the chemical list nearly doubled the number of chemicals on the TRI, bringing the total number of chemicals to 643.</p> <p>EPA has streamlined the reporting requirement for facilities with small annual reportable amounts of listed toxic chemicals. Facilities which have annual reportable amounts of a listed toxic chemical that do not exceed 500 pounds can apply a higher activity threshold in determining their reporting obligations. These facilities do not have to complete a Form R, but can file a shorter certification statement form (Form A).</p>
Phase 2: Facility Expansion	<p>In the spring of 1997, EPA is proposing to add a number of non-manufacturing industry sectors to the TRI program. These industry sectors will be required to report to TRI for the 1997 calendar year. These reports will be due to EPA on July 1, 1998. Among the proposed industry sectors included in the expansion are: metal mining, coal mining, electrical utilities, RCRA Subtitle C hazardous waste treatment and disposal facilities; chemical and allied product wholesale distributors; petroleum bulk stations and terminals; and solvent recovery services.</p>
Phase 3: Chemical Use Reporting	<p>EPA is actively exploring the nature, scope, and issues involved in requiring the collection of chemical use information. On October 1, 1996, EPA issued an Advance Notice of Proposed Rulemaking announcing the Agency's intent to move forward on this issue.</p>
Future TRI Modifications	<p>Pollution Prevention Act Reporting: EPA is currently developing a supplemental notice of proposed rulemaking to clarify how facilities collect and report information on source reduction and recycling activities. EPA plans to finalize this rule before 1997 reporting.</p> <p>Form R Redesign: For reporting year 1996, EPA has redesigned the Form R and will issue a new five-page form.</p>

Table 1.

CURRENT TRI EXPANSION ACTIVITIES	
TRI Expansion Activities	Summary Description
Future TRI Modifications (Continued)	<p>Persistent Bioaccumulators: EPA is evaluating options for better addressing the need to collect information on chemicals that are identified as toxic persistent bioaccumulators. These are chemicals that build up in organisms, such as fish and plants, and can have adverse effects on human health and the environment. Options include adding new toxic bioaccumulators to the TRI list and lowering the reporting threshold for these chemicals.</p> <p>Hazard Assessments: EPA is conducting a detailed hazard assessment of the original TRI chemicals to determine whether these chemicals meet the toxicity criteria for listing.</p>

Table 1, Continued.

presents brief summaries of EPA's TRI expansion activities, TRI program revisions, and development of international TRI programs.

33/50 Program

EPA established the 33/50 Program in 1991. This program was EPA's first voluntary initiative aimed at reducing the releases and transfers of toxic chemicals. From the list of TRI chemicals, EPA selected 17 chemicals for the program. The name is derived from the program's two goals: a 33% reduction by 1992 and a 50% reduction by 1995. The baseline year was 1988. The success of the program has shown how EPA and industry can work positively in a cooperative fashion. EPA is now evaluating the results and lessons learned and discussions are now underway to determine the benefits of additional voluntary programs.

International Aspects of TRI

Toxic chemical releases know no boundaries. While TRI data provides a wealth of information about releases and transfers of toxic chemicals within the United States, information on releases and transfers coming from other countries is limited. This situation, however, is changing. There are an increasing number of countries developing TRI-like systems. The international term for these systems is Pollutant Release and Transfer Registers (PRTRs).

There presently are six nations with PRTR systems (Canada, France, Netherlands, Norway, United Kingdom, United States). Many more nations are in various stages of establishing a system (Australia, Czech Republic, Denmark, European Union, Finland, Japan, Mexico, Sweden, Switzerland). With the Earth Summit, the Organization for Economic Co-operation and Development and other international organizations stressing the importance and value of PRTR systems, still more nations are considering taking similar steps.

CHAPTER 4: 1995 TOXICS RELEASE INVENTORY

For reporting year 1995, 21,951 facilities filed 73,311 TRI reporting forms. Also for the 1995 reporting year, the number of chemicals on the TRI list almost doubled. A total of 4,410 out of the 73,311 forms for 1995 are for the newly added chemicals.

As described earlier in this overview, TRI data alone cannot indicate the risk that chemical releases pose to human health and the environment. Though TRI data are useful as a starting point in identifying potential risks, other information is requirement to evaluate risk in a particular area.

Beginning in 1995, facilities that meet reporting requirements, but whose "total annual reportable amount" for a TRI chemical does not exceed 500 pounds, may submit a "certification" form, or Form A. Unlike the TRI Form Rs, Form As do not include amounts of the chemical released to

the environment or transferred to other locations. Facilities submitted 6,437 Form As in 1995.

On-Site Releases

In 1995, facilities reported releasing 2.2 billion pounds of listed toxic chemicals into the nation's environment. Table 2 shows the quantity of listed chemicals released to air, water, and land and injected underground.

Figure 1 shows the distribution of toxic chemical releases by type of release. Air emissions constituted approximately 71% of all toxic chemical releases in 1995. Surface water discharges, which include releases to rivers, lakes, oceans, and other bodies of water, accounted for 6% of all releases. Underground injection accounted for almost 11% of total releases, while on-site releases to land, which include landfills, surface impoundments, and other types of land disposal, accounted for nearly 13%. (Box 4-1 in Chapter 4 provides an explanation of these release types.)

1995 TRI Releases	
	Pounds
Total Releases	2,208,749,411
Fugitive Air	385,094,609
Point Source Air	1,177,227,504
Surface Water	136,315,624
Underground Injection	234,979,709
On-site Land Releases	275,131,965

Table 2.

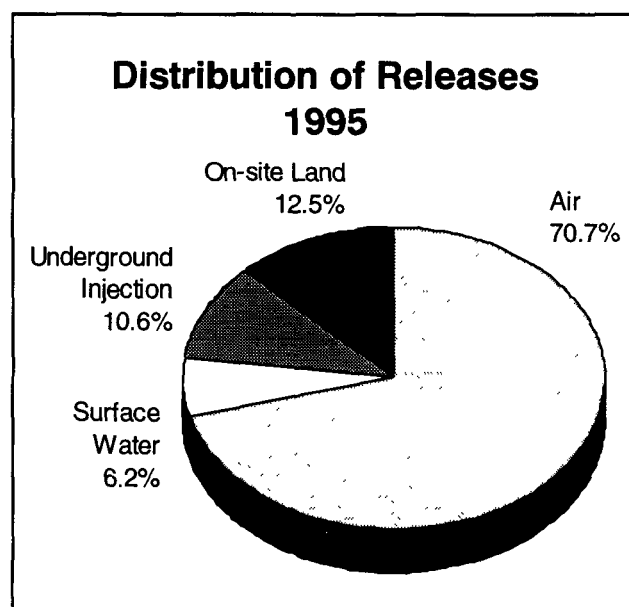


Figure 1.

Off-site Transfers

In 1995, facilities reported transfers of 3.5 billion pounds of toxic chemicals in waste to off-site locations for recycling, energy recovery, treatment, and disposal.

Table 3 shows the quantity of toxic chemicals transferred to off-site locations for each type of waste management activity, and Figure 2 shows their distribution by waste management activity. Transfers to off-site locations for recycling accounted for about 63% of all transfers. Nearly 15% of transfers were for energy recovery. Transfers to treatment and disposal, including those sent to publicly owned treatment works (POTWs), accounted for nearly 23%. (Box 4-2 in Chapter 4 explains the transfer types. Except for transfers for disposal, transfers do not necessarily represent entry of the chemical into the environment.)

1995 TRI Transfers	
	Pounds
Total Transfers	3,534,827,951
Transfers to Recycling	2,213,731,389
Transfers to Energy Recovery	512,029,726
Transfers to Treatment	287,576,863
Transfers to POTWs	239,836,516
Transfers to Disposal	279,222,397
Other Off-site Transfers ²	2,431,060

Table 3.

Releases and Transfers of Newly Added Chemicals, 1995

Beginning with the 1995 reporting year, EPA added 286 chemicals¹ to the TRI list, nearly doubling its previous chemical coverage. Among the additions are chemicals specifically affecting children's health, carcinogens, chemicals used as pesticides, and some that are released in great quantities to the air, potentially affecting air quality and respiratory health.

Releases of the newly added chemicals totaled 238 million pounds, which represents approximately one tenth (11%) of releases reported for all TRI chemicals in 1995, as shown on Table 4. Off-site transfers totaled 155 million pounds, a much smaller portion (4%) of transfers reported for all TRI chemicals, as shown on Table 5.

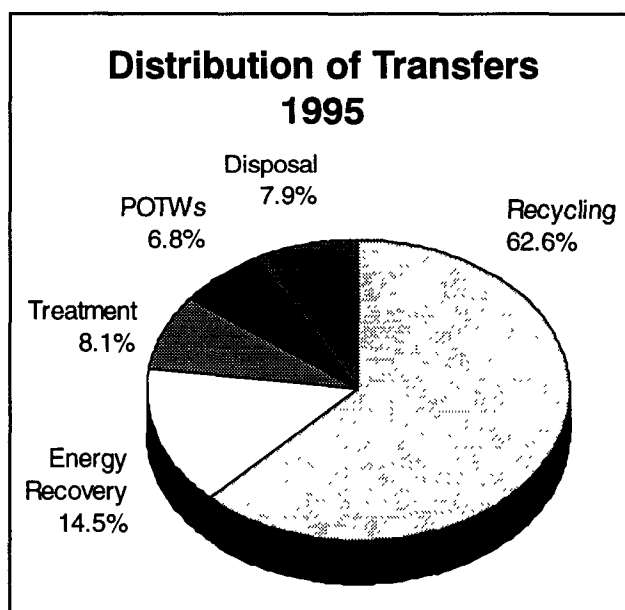


Figure 2.

- ¹ Of the 286 chemicals, 20 were diisocyanates and 19 were polyaromatic compounds. These are reported not as individual chemicals, but as 2 chemical compounds. Furthermore, 3 other chemicals have been remanded, and one chemical was not reportable for 1995 because of an administrative stay. Therefore, the number of reportable chemicals added to the TRI in 1995 was 245.
- ² Does not include "other" off-site transfers, i.e., those reported without valid waste management codes (2 million pounds).

1995 TRI Releases of Newly Added Chemicals		
	Pounds	Percent of All TRI Chemicals
Total Releases	237,722,570	10.76
Fugitive Air	26,370,105	6.85
Point Source Air	63,104,521	5.36
Surface Water	90,243,306	66.20
Underground Injection	54,116,863	23.03
On-site Land Releases	3,887,775	1.41

Table 4.

Facilities reported large amounts of releases of some of the newly reportable chemicals. More nitrate compounds, for example, were reported as discharges to water in 1995 than any other chemical on the TRI list (more than 88 million pounds). Nitrate compounds were also the chemical most reported, among all TRI chemicals, as injected to underground wells (46 million pounds). This reporting of nitrate compounds has influenced the distribution of reported releases by type of release: Surface water discharges account for 38% of releases for the new chemicals, but only 2% of releases reported for all other TRI chemicals.

N-Hexane is the chemical with the second largest releases among the newly added chemicals. Almost all releases of n-hexane are reported as air emissions (77 million pounds), and they represent 86% of the total air emissions of the newly added TRI chemicals and 3% of the total air emissions of all TRI chemicals.

Chapter 4 provides additional information on nitrates, n-hexane, and other chemicals of particular interest from the expanded TRI list.

1995 TRI Transfers of Newly Added Chemicals		
	Pounds	Percent of All TRI Chemicals
Total Transfers	155,088,391	4.39
Transfers to Recycling	29,473,788	1.33
Transfers to Energy Recovery	24,832,143	4.85
Transfers to Treatment	31,029,283	10.79
Transfers to POTWs	59,387,743	24.76
Transfers to Disposal	10,357,700	3.71
Other Off-site Transfers ³	7,734	0.32

Table 5.

Releases and Transfers by State, 1995

The top states for total releases for 1995 reporting were Texas with 284 million pounds, Louisiana with 172 million pounds, and Ohio with 122 million pounds. As shown in Chapter 4, third-ranked Ohio had the largest number of reporting facilities (1,623) and Form As (485) in 1995, but Texas had a greater number of total forms (5,705).

The total quantity of releases reported by these states does not necessarily indicate that risks from toxic chemicals are highest in these states. Release totals do not take into account the geographic size of the state or the size of its population. As discussed above, the risk from releases of toxic chemicals depends on a variety of factors, including the type of release, the toxicity of the chemical, and the proximity of populations to the releases.

As with releases, Texas reported more total off-site transfers than any other state, 343 million pounds in 1995, followed by Ohio (319 million pounds), and Indiana (261 million pounds).

³ Does not include "other" off-site transfers, i.e., those reported without valid waste management codes.

Standard Industrial Classification (SIC) Codes

- 20 Food and kindred products
- 21 Tobacco products
- 22 Textile mill products
- 23 Apparel and other finished products made from fabrics and similar materials
- 24 Lumber and wood products, except furniture
- 25 Furniture and fixtures
- 26 Paper and allied products
- 27 Printing, publishing, and allied industries
- 28 Chemicals and allied products
- 29 Petroleum refining and related industries
- 30 Rubber and miscellaneous plastics products
- 31 Leather and leather products
- 32 Stone, clay, glass, and concrete products
- 33 Primary metal industries
- 34 Fabricated metal products, except machinery and transportation equipment
- 35 Industrial and commercial machinery and computer equipment
- 36 Electronic and other electrical equipment and components, except computer equipment
- 37 Transportation equipment
- 38 Measuring, analyzing, and controlling instruments; photographic, medical and optical goods; watches and clocks
- 39 Miscellaneous manufacturing industries

Box 3.

Releases and Transfers by Industry, 1995

In the private sector, only manufacturing facilities in SIC codes 20 through 39 were required to report to TRI for 1995. Box 3 lists the industry groups currently subject to TRI, along with their corresponding SIC codes. Facilities owned and operated by the federal government were required to report for the first time in 1994. Other industry groups are currently under consideration for addition to the reporting requirements (as discussed in Chapter 3).

TRI reporting forms allow facilities to report more than one SIC code to fully characterize their operations. Facilities that reported two or more two-digit SIC codes (major groups) within the manufacturing range of 20-39 [for example, petroleum (29) and chemicals (28)] are assigned to a “multiple codes” category.

The industries with the largest quantities of reported toxic chemical releases in 1995 were chemicals (788 million pounds), primary metals (331 million pounds), and paper (233 million pounds). The industries with the largest total transfers to off-site locations were the primary metals industry (987 million pounds), chemicals (952 million pounds), and electrical equipment (416 million pounds). Facilities reporting more than one SIC code rank among the top five in both categories.

Releases and Transfers by Federal Facilities, 1995

In 1995, 144 federal facilities reported to TRI. They reported total releases of 7.9 million pounds and total transfers of 6.5 million pounds. Department of Defense facilities accounted for 71% of releases reported by federal facilities and 88% of transfers. As shown in Chapter 4, air emissions dominate federal facilities’ reporting of releases, as they do for all TRI facilities.

Federal facilities reported off-site transfers 1.4 million pounds *less* than on-site releases in 1995—that is, the amount of transfers was a little more than three quarters of the amount of releases. In contrast, off-site transfers from all TRI facilities were one and a half times *greater* than on-site releases.

Top 10 Chemicals Total Releases, 1995	
Chemical	Total Releases Pounds
Methanol	245,012,356
Ammonia	195,096,446
Toluene	145,887,469
Nitrate compounds	137,743,102
Xylene (mixed isomers)	95,739,943
Zinc compounds	87,648,691
Hydrochloric acid	85,330,532
Carbon disulfide	84,169,763
n-Hexane	77,396,162
Methyl ethyl ketone	70,054,939
Subtotal	1,224,079,403
Total for All TRI Chemicals	2,208,749,411

Table 6.

Top 10 OSHA Carcinogens Total Releases, 1995	
Chemical	Total Releases Pounds
Dichloromethane	57,289,960
Styrene	41,873,608
Trichloroethylene	25,489,839
Formaldehyde	19,426,396
Acetaldehyde	14,410,140
Chloroform	10,600,257
Benzene	9,592,003
Tetrachloroethylene	9,400,811
Acrylonitrile	6,471,484
Acrylamide	6,141,395
Subtotal	200,695,893
Total for All OSHA Carcinogens	230,134,414

Table 7.

Chemical-Specific Release Data, 1995

Table 6 shows the 10 TRI chemicals released in the greatest quantity in 1995. Facilities reported releasing more than 100 million pounds each of four chemicals: methanol, 245 million pounds; ammonia, 195 million pounds; toluene, 146 million pounds, and nitrate compounds, 138 million pounds. For the first three of these chemicals, the primary release medium is air. More nitrate compounds are discharged to water than any other chemical, and more zinc compounds to land. Nitrate compounds are also the chemical most reported as injected to underground wells.

Both nitrate compounds and n-hexane (ranked ninth) are among chemicals added to the TRI list in 1995.

OSHA Carcinogen Releases, 1995

For reporting purposes, TRI designates 164 chemicals as carcinogens based on criteria set forth in the Occupational Safety and Health Administration's Hazard Communication Standards. Some of these chemicals, such as benzene or asbestos, are known to cause cancer in humans. Others are suspected to cause cancer in humans because they have been shown to cause cancer in laboratory animals.

More than 230 million pounds of TRI-listed carcinogens were released to the air, water, and land and injected underground in 1995. Table 7 shows the 10 OSHA carcinogens on the TRI list with the largest quantities of total releases in 1995.

Prevention and Management of TRI Chemicals in Waste

The Pollution Prevention Act of 1990 (PPA) expanded TRI to require reporting about quantities of TRI chemicals in waste and about source reduction activities undertaken to eliminate or reduce those quantities. Under the PPA, source reduction is considered the preferred approach to reducing toxic chemicals in waste. Figure 3 illustrates a hierarchy for waste management decision-making, with disposal of waste the last resort.

Figure 4 illustrates the quantities of TRI chemicals in waste undergoing each on-site and off-site waste management activity (recycling, energy recovery, treatment, and release/disposal). Facilities reported more than 35.0 billion pounds of TRI chemicals in waste in 1995. The amount of TRI chemicals in waste reported includes both waste generated by the facility and waste received by the facility for the purpose of waste management.

In 1995, facilities in Texas reported the largest quantity of TRI chemicals in waste, with 3.7 bil-

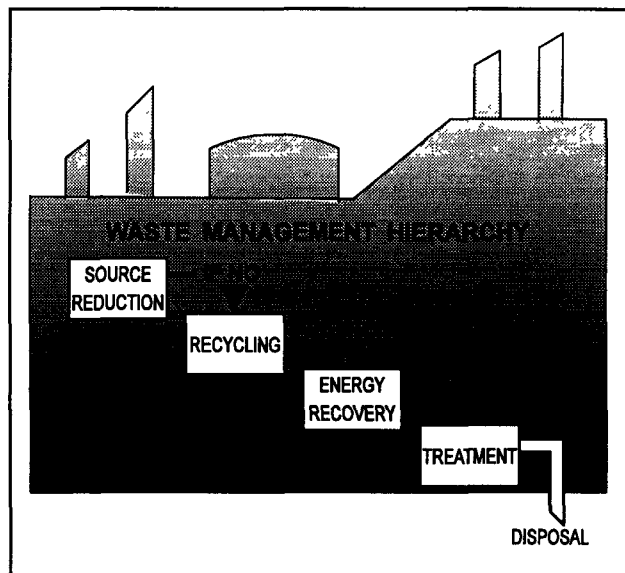


Figure 3.

lion pounds. Iowa, Georgia, and North Carolina ranked high in production-related waste because a few facilities in those states reported recycling of more than 100 million pounds each of n-hexane, a chemical newly reportable in 1995.

The top industries for total production-related waste in 1995 were the chemicals, food, and primary metals industries. Again, a few

Quantities of TRI Chemicals Managed in Waste, 1995

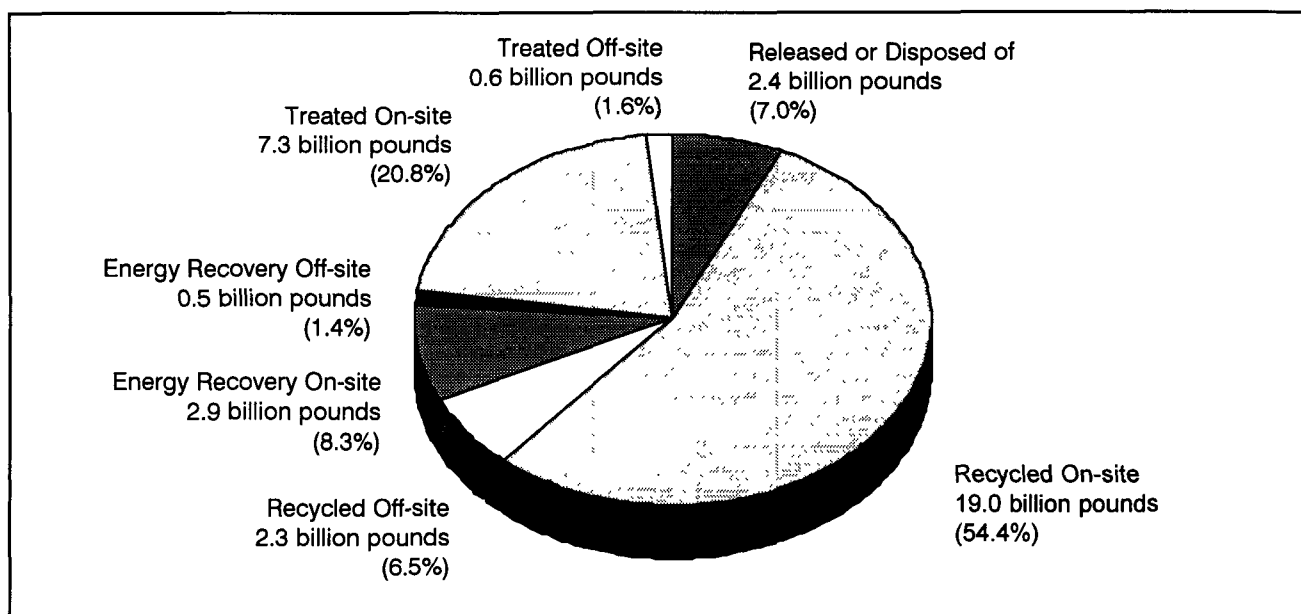


Figure 4.

Top 10 Chemicals Total Production-related Waste, 1995	
Chemical	Total Production-related Waste Pounds
n-Hexane	10,782,506,710
Methanol	2,299,493,988
Toluene	1,700,597,773
Hydrochloric acid	1,404,505,346
Sulfuric acid	1,384,257,511
Ethylene	1,275,337,177
Copper	1,183,291,734
Lead compounds	860,731,139
Ammonia	846,158,726
Propylene	770,833,803
Subtotal	22,507,713,907
Total for All TRI Chemicals	35,027,058,218

Table 8.

facilities' reports for n-hexane account for the food products industry's high ranking.

Table 8 shows the 10 chemicals for greatest total production-related waste reported in 1995. Nearly all of the production-related waste reported for n-hexane, first on this list, was recycling (10.6 billion pounds).

Table 9 shows the quantities reported for 1995 and projected for 1997 for each waste management activity along with the percent change that the projections represent.

Facilities' projections for 1996 and 1997 show that they expect very little change in how they handle their waste in the next two years. As shown in Chapter 4, projections of 61.0% recycling of TRI chemicals in waste, 9.7% for energy recovery, 22.5% to treatment and 6.7% released or disposed of in 1997 are nearly identical to reported management of waste for 1995 (see Figure 4). The data indicate that, overall, facilities do not anticipate discernible progress in moving up the waste management hierarchy in the next two years.

Quantities of TRI Chemicals in Waste 1995 (Actual) – 1997 (Projected)			
Management Activity	Actual 1995 Millions of Pounds	Projected 1997 Millions of Pounds	Change 1995-97 Percent
Recycled On-site	19,049	18,892	-0.8
Recycled Off-site	2,284	2,323	1.7
Energy Recovery On-site	2,903	2,904	0.0
Energy Recovery Off-site	501	481	-4.0
Treated On-site	7,290	7,320	0.4
Treated Off-site	557	511	-8.2
Quantity Released/Disposed of	2,443	2,334	-4.5
Total Production-related Waste	35,027	34,764	-0.8

Table 9.

Source Reduction Activities, 1995

Facilities also must provide information about source reduction activities they implemented during the reporting year. Source reduction activities reduce the amount of a toxic chemical entering a waste stream and therefore prevent pollution before it is generated. Waste management activities such as recycling are not considered source reduction because they manage toxic chemicals after they enter waste streams. Nearly 29% of all TRI facilities reported at least one source reduction activity in 1995. Table 10 lists the categories of source reduction activities and their reporting frequency.

Source Reduction Activity, 1995	
Category of Activity	Number of TRI Forms Reporting
Good Operating Practices	6,662
Inventory Control	1,599
Spill and Leak Prevention	3,441
Raw Material Modifications	2,667
Process Modifications	4,869
Cleaning and Degreasing	1,236
Surface Preparation/Finishing	1,579
Product Modification	1,265

Table 10.

CHAPTER 5: YEAR-TO-YEAR COMPARISONS

Chapter 5 compares TRI data for sets of “core chemicals”—that is, chemicals that were reportable in all years of the comparison being made. (Newly added chemicals are therefore not included.)

Reported toxic chemical releases decreased by 5% between 1994 and 1995. The greatest reduction occurred in air emissions (nearly 89 million pounds). At the same time, underground injection increased 24 million pounds. Transfers increased by just 0.4% since 1994. Greater amounts were reported as transfers to energy recovery and to treatment in 1995, offset in part by declining transfers to recycling. Table 11 compares the 1994 and 1995 release and transfer quantities.

	1994-1995 Change	
	Pounds	Percent
Total Releases	-85,396,733	-4.9
Air	-88,774,153	-6.8
Surface Water	-4,095,016	-10.2
Underground Injection	24,466,621	19.5
Land	-16,994,185	-6.0
Total Transfers	11,603,125	0.4
Recycling	-27,347,107	-1.3
Energy Recovery	30,239,186	6.6
Treatment	18,720,356	8.5
POTWs	-3,398,406	-2.1
Disposal	-5,412,184	-2.0
Other ^④	-1,198,720	-35.0

Table 11.⑤

Since 1988, EPA’s baseline year for TRI comparisons, releases have declined by nearly 46%. Figure 5 illustrates the change in each release type since 1988.

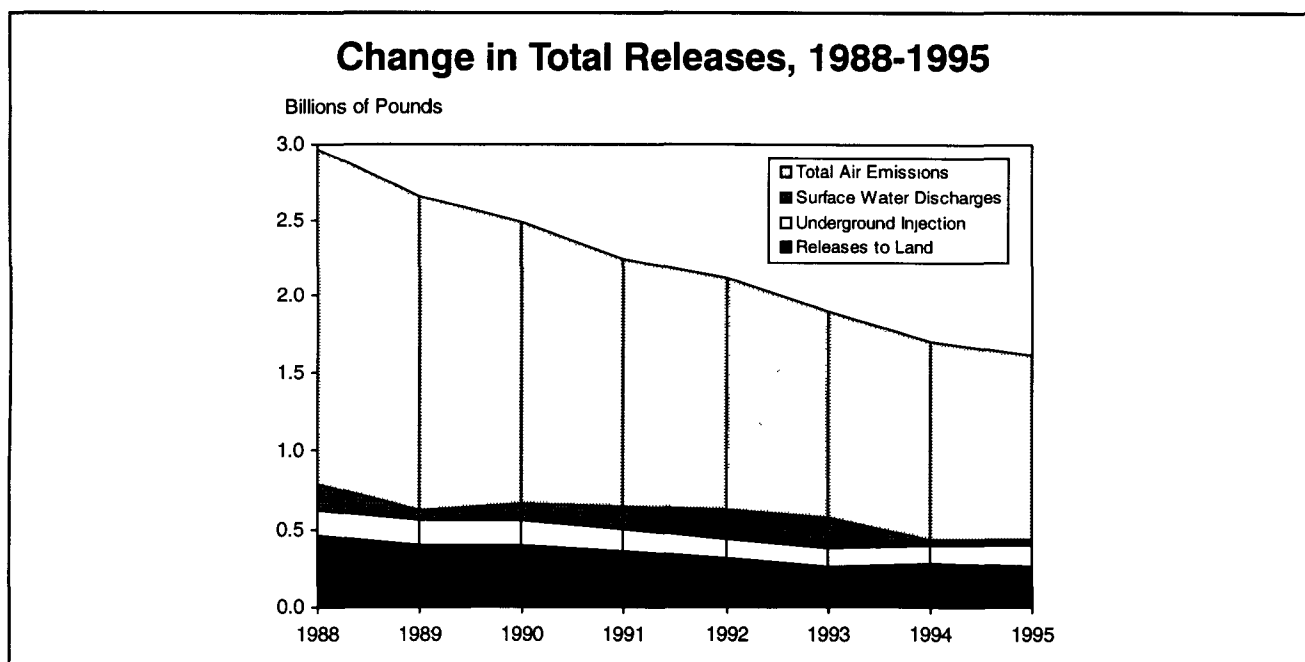


Figure 5.⑥

- ④ Transfers reported with no waste management codes or invalid codes.
- ⑤ Does not include delisted chemicals, chemicals added in 1995, and ammonia, hydrochloric acid, and sulfuric acid.
- ⑥ Does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid.

Change in Total Releases by State, 1988-1995

Louisiana and Texas led all states (first and second, respectively) in reducing releases over the seven-year period from 1988 to 1995. They ranked second and first, respectively, for total TRI releases in 1995. Louisiana's greatest reduction has occurred in surface water discharges (106 million pounds). In Texas, the greatest decrease has been in air emissions (84 million pounds).

Change in Total Releases by Industry, 1988-1995

The chemical industry reported the largest decrease in total releases from 1988 to 1995, with a decrease of 488 million pounds. The primary metals industry had the second largest decrease, 180 million pounds. Several industries, however, have reported larger percentage decreases than these industries. The electrical equipment industry and the leather industry have both reported decreases greater than 75% from 1988 to 1995.

Change in Total Releases by Federal Facilities, 1994-1995

Federal facilities began required TRI reporting in 1994, as directed by Presidential Executive Order 12856. In their second year, 1995, federal facilities reported total TRI releases 24% below their level in the previous year, a 2 million-pound reduction. As indicated above, Department of Defense facilities account for the majority of federal releases. They also account for the greatest reductions in reported releases.

Change in Total Releases by Chemical, 1988-1995

Table 12 lists the 10 chemicals with the largest decrease in total releases from 1988 to 1995. Releases of 1,1,1-trichloroethane (TCA) declined by nearly 159 million pounds, or 88%. TCA is an ozone-depleting chemical, whose production was banned as of January 1, 1996. Table 13 lists the 10 chemicals with the largest increases in total releases from 1988 to 1995.

Top 10 Chemicals for Decreases in Total Releases, 1988-1995		
Chemical	1988-1995 Change	
	Pounds	Percent
1,1,1-Trichloroethane	-158,466,258	-87.5
Toluene	-155,650,140	-51.6
Phosphoric acid	-119,722,557	-67.5
Chlorine	-73,991,363	-52.8
Dichloromethane	-73,807,518	-56.3
Methyl ethyl ketone	-71,515,727	-50.5
Methanol	-68,047,817	-21.7
Freon 113	-67,878,855	-96.3
Xylene (mixed isomers)	-63,885,306	-40.0
Manganese compounds	-48,545,043	-51.9
Total for Top 10 Chemicals	-901,510,584	-52.7

Table 12.7

Top 10 Chemicals for Increases in Total Releases, 1988-1995		
Chemical	1988-1995 Change	
	Pounds	Percent
Copper compounds	10,437,157	31.4
Acetonitrile	9,888,787	52.1
Styrene	7,510,509	21.9
Acetaldehyde	4,948,592	52.3
Acrylamide	3,913,496	175.7
1,2,4-Trimethylbenzene	3,087,977	69.6
Ethylbenzene	2,651,815	33.1
Acetamide	920,008	—
Methyl tert-butyl ether	858,419	32.7
m-Cresol	710,505	3,706.3
Total for Top 10 Chemicals	44,927,265	39.7

Table 13.7

7 Calculation of top chemicals does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid.



33/50 Program Chemicals

In 1991, EPA invited industry to participate in a program of voluntary reductions in releases and transfers of 17 targeted chemicals (listed in Box 4). The 33/50 Program took its name from its goals: 33% reduction in releases and transfers by 1992 and 50% reduction by 1995, using 1988 as a baseline. With the 1994 reporting year—one year early—the program met its 50% reduction goal.

In 1995, releases and transfers for the 17 targeted chemicals continued to decline; they totaled 664 million pounds, a 55.6% reduction from the program's 1988 baseline (see Table 14).

Figure 6 shows the difference between the years prior to the 33/50 Program and the years after. For the two years before initiation of the program (1988 to 1990 reporting years), releases and transfers of 33/50 chemicals decreased comparably to those for all TRI chemicals. In the years since EPA's invitation to companies to participate in this program (1990 to 1995), releases and transfers of 33/50 chemicals declined 47%, compared to 26% for TRI chemicals as a whole.

17 Priority Chemicals Targeted by the 33/50 Program

Benzene	Methyl ethyl ketone
Cadmium and compounds	Methyl isobutyl ketone
Carbon tetrachloride	Nickel and compounds
Chloroform	Tetrachloroethylene
Chromium and compounds	Toluene
Cyanide compounds	1,1,1-Trichloroethane
Dichloromethane	Trichloroethylene
Lead and compounds	Xylenes
Mercury and compounds	

Box 4.

33/50 Program Chemicals Releases and Transfers, 1988, 1990, 1994, 1995

Pounds	
1988	1,495,489,355
1990	1,263,959,610
1994	744,431,916
1995	664,429,866
Percent Change	
1988-1990	-15.5%
1990-1995	-47.4%
1994-1995	-10.8%
1988-1995	-55.6%

Table 14.⑧

Reduction in Releases and Transfers: 33/50 Program Chemicals vs. Other TRI Chemicals, 1988-1995

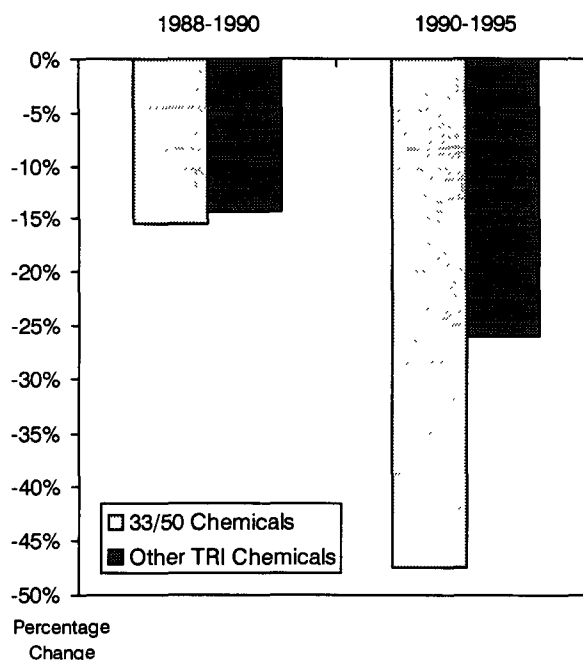


Figure 6.⑧

⑧ Does not include amount for recycling and energy recovery reported for 1991-1995. Also excludes delisted chemicals, chemicals added in 1990, 1991, 1994 and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid.

TRI Chemicals in Waste, 1991-1997

From 1991, the first year of Pollution Prevention Act reporting, to 1992, the total quantity of TRI chemicals reported in production-related waste decreased 2.5%. Since then, however, total production-related waste has risen annually, for a net increase from 1991 to 1995 of nearly 7%. This increase has been in recycling, on-site treatment, and off-site energy recovery. The quantity released/disposed of has shown a 25% decrease since 1991.

Table 15 shows the change in pounds and percentage for each waste management activity from 1991 to 1995.

Quantities of TRI Chemicals in Waste, 1991-1995

Management Activity	1991-1995 Change	
	Pounds	Percent
Recycled On-site	959,042,320	15.4
Recycled Off-site	462,118,301	26.4
Energy Recovery On-site	-190,285,784	-6.4
Energy Recovery Off-site	34,001,986	7.7
Treated On-site	653,729,220	15.0
Treated Off-site	-35,529,197	-8.2
Quantity Released/ Disposed of	-625,187,398	-25.4
Total Production-related Waste	1,257,889,448	6.8

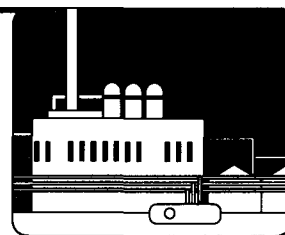
Table 15.9

FURTHER INFORMATION

Regional EPA contacts and state contacts for TRI and related information appear in Appendix A of this report. Appendix B offers information on access to TRI data and on its uses. TRI Form R appears in Appendix C.

9 Data from Form R of year indicated. Does not include delisted chemicals, chemicals added in 1994 and 1995, and ammonia, hydrochloric acid, and sulfuric acid.

Chapter 1



Introduction / Purpose

This report provides an overview of the information collected under the authority of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 and contained in the Toxics Release Inventory (TRI) database. It represents one piece of a broad public access initiative to provide the public with information on the release and transfer of certain toxic chemicals from facilities that manufacture, process, or otherwise use these substances.

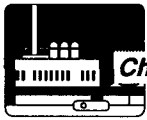
The source of data used in this report is the TRI. The TRI is a publicly available database containing information on releases and transfers into all environmental media including air, water, and land. This document summarizes data collected for calendar year 1995. Industry reporting forms for 1995 were due to the Environmental Protection Agency (EPA) and the states by July 1, 1996. This document also provides basic data for the two preceding years (1993 and 1994) and for the baseline year (1988) for comparison purposes. Although the first data were collected for calendar year 1987, 1988 was selected as the baseline year because of concerns about the data quality of industry's first-year submissions. The on-line computer database and

the CD-ROM version of the database contain the data collected for all years, including years not summarized in this report.

Additional information on these and other chemicals can be obtained through on-line providers such as the National Library of Medicine's TOXNET, the Right-to-Know Network's RTK NET, and EPA's Internet Server Earth1.

TWO-PHASE APPROACH TO RELEASE OF 1995 DATA

For 1995 TRI data, EPA is using a different approach to the data release. This change in approach is necessitated by the increasing complexity of the TRI data as well as the Agency's desire to provide the raw data to the public as soon as possible. EPA will be publishing two TRI reports. The first, reflected in this document, is a report that summarizes the raw data and arrays it in many of the ways that the public has come to expect. This report summarizes the basic 1995 data and presents significant nationwide trends. It addresses such topics as releases, transfers, and waste



management practices by state, industry (including federal facilities), and chemicals, pollution prevention information, and presents an initial comparison of the 1995 data against the two previous years (1993 and 1994) and 1988 (the first year data was analyzed). This report presents the complete 1995 data and the set of newly added chemicals, as well as the “core” data set of chemicals that have been reported since 1988.

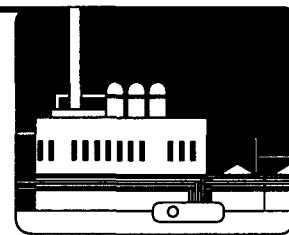
The second phase of the data release will occur in the Fall of 1997 and will serve to provide a more in-depth look at the data and the trends. This second phase will include the publication of an industry sector-based analysis of trends as well as the publication of a comprehensive guide to TRI data use. The sector-based approach will compare like facilities to each other and will allow for a sector-based assessment of future prevention and technology needs. This sector based approach will allow for goal-setting within sectors and across facilities.

A ROADMAP TO THIS REPORT

This report is organized in the following manner. Chapter 1 (this chapter) articulates the purpose for the report and the schedule for the release of the 1995 TRI data. Chapter 2 provides an overview of TRI reporting, describing who reports, what is reported, and the benefits and limitations of the data. Chapter 3 presents the TRI in a broad perspective. The chapter looks at the expansion of the TRI (three phases), other modifications to the TRI, and the conclusion of the 33/50 Program. Chapter 4 presents the findings for the 1995 TRI data, including chemicals added for the 1995 reporting year. This chapter provides a national overview and also presents more detailed information by state, industry type (including federal facilities), and specific chemical. In addition, this chapter presents pollution prevention information. Chapter 5 presents the 1995 data in comparison to other reporting years.

Chapter 2

TRI Reporting



WHAT IS THE TOXICS RELEASE INVENTORY?

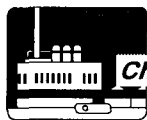
The TRI is a publicly available database that contains specific toxic chemical release and transfer information from manufacturing facilities (including federal facilities as of 1994) throughout the United States. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), which Congress passed to promote planning for chemical emergencies and to provide information to the public about the presence and release of toxic chemicals in their communities.

Following passage of the Pollution Prevention Act of 1990, the TRI was expanded to include mandatory reporting of additional waste management and pollution prevention activities. The information collected under these laws can be used by the public to identify facilities and chemical release patterns that warrant further study and analysis. Combined with hazard and exposure information, TRI has proven to be a valuable tool for risk identification.

Each year, manufacturing facilities meeting certain thresholds must report their releases and transfers of listed toxic chemicals to EPA and to the state or tribal entity in whose jurisdiction the facility is located. The TRI list for 1995 included more than 600 chemicals and 28 chemical categories. Each facility must report its information on a form, known as Form R, provided by the EPA. A Form R report is required for each TRI chemical the facility has manufactured, processed, or otherwise used in amounts exceeding the thresholds for the 1995 reporting year. Starting with the 1995 reporting year, some facilities with lower levels of reportable amounts can file a much shorter certification form (Form A).^❶

Reports for each calendar year are due by July 1 of the following year. After completion of data entry and data quality assurance activities, the Agency makes the data available to the public in printed reports, in a computer database, and through a variety of other information products such as CD-ROMs. States also make available to

^❶ The annual reportable amount is defined as the total of all releases to the environment and other generated wastes containing the listed toxic chemical.



the public copies of the forms filed by facilities in their jurisdiction. In addition, some states independently produce a data release report.

WHO MUST REPORT?

Manufacturing facilities that have the equivalent of 10 or more full-time employees and meet the established thresholds for manufacturing, processing, or otherwise using listed chemicals must report their releases and transfers.

Manufacturing facilities are defined as facilities in Standard Industrial Classification (SIC) primary codes 20-39, which include, among others: chemicals, petroleum refining, primary metals, fabricated metals, paper, plastics, and transportation equipment. Thresholds for manufacturing and processing are currently 25,000 pounds for each listed chemical, while the threshold for otherwise using is 10,000 pounds per chemical. Beginning with the 1995 reporting year, certain facilities were able to take advantage of an alternate, burden reducing reporting threshold (see Chapter 3 for additional details).

WHAT MUST BE REPORTED?

Each year, facilities report to TRI the amounts of toxic chemicals released to the air, water and land and injected underground, and the amounts of chemicals transferred off-site for disposal, treatment, energy recovery, and recycling. Facilities provide specific identifying information, such as:

- name
- location
- type of business
- contact names
- name of parent company
- environmental permit numbers.

They also provide information about the manufacture, processing, and use of the listed chemical at the facility and the maximum amount of the chemical on-site during the year. Facilities provide information about methods used to treat waste at the site and the efficiencies of those treatment methods. In addition to information about the amount of toxic chemicals sent off-site, facilities also must specify the destination of these transfers.

Beginning with the 1991 reports, facilities were required to provide information about source reduction activities and about additional waste management activities such as recycling. Companies must provide a production index that can help relate changes in reported quantities of toxic chemicals in waste to changes in production. These additional data elements facilitate tracking of industry progress in reducing waste generation and moving towards safer management alternatives. While the current TRI data cannot provide an absolute measure of pollution prevention, the data can provide new insight into the complete toxics cycle.

WHAT ARE THE BENEFITS AND LIMITATIONS OF THE DATA?

Benefits

The TRI program has given the public unprecedented direct access to toxic chemical release, transfer, and other waste management data at the local, state, regional, and national level. Responsible use of this information can allow the public to identify potential concerns, gain a better understanding of potential risks, and work with industry and government to reduce toxic chemical releases and the risks associated with them. When combined with hazard and exposure data, this information can allow informed environmental priority setting at the local level.



Federal, state, and local governments can use the data to compare facilities or geographic areas to identify hotspots, to evaluate existing environmental programs, to more effectively set regulatory priorities, and to track pollution control and waste reduction progress. TRI data, in conjunction with demographic data, can help government agencies and the public identify potential environmental justice concerns.

Industry can use the data to obtain an overview of the releases and management of toxic chemicals, to identify and reduce costs associated with toxic chemicals in waste, to identify promising areas of pollution prevention, to establish reduction targets, and to measure and document progress toward reduction goals. The public availability of the data has prompted many facilities to work with their communities to develop effective strategies for reducing environmental and human health risks posed by toxic chemical releases.

The recent completion of Phase 1 TRI expansion has increased the usefulness of the data. The scope of the program was broadened to include 282 new chemicals and chemical categories on the list of reportable chemicals for a total of 643 chemicals. Many of these new chemicals are high production volume (HPV) chemicals and highly toxic substances.

Limitations

While the TRI provides the public, industry, and state and local governments an invaluable source of key environmental data, the TRI has some limitations which need to be considered when using the data. Currently, the program only applies to the manufacturing sector (although this will change with the implementation of Phase 2—Facility Expansion), a significant but limited sector of the industrial world handling toxic chemicals. Facilities with fewer than the equivalent of 10 full-time employees and facili-

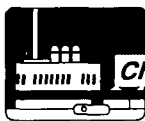
ties that do not meet the chemical thresholds are not required to submit TRI reports. Thus, while the TRI included more than 73,000 reports from approximately 22,000 facilities for 1995, it captures only a portion of all toxic chemical releases nationwide (approximately 2.2 billion pounds of total releases).

Another limitation of the existing TRI program is that the data currently collected provides limited data on the life cycle of chemicals used by facilities. Beyond reporting on chemical releases and waste management activities, only limited and very general information on chemical storage is provided and no information on the toxicity of chemicals is presented. In addition, the TRI does not account for toxic emissions from automobiles and many other non-industrial sources.

Furthermore, TRI requires the reporting of estimated data and does not mandate that facilities monitor their releases. Various estimation techniques are used when monitoring data are not available, and EPA has published estimation guidance for the regulated community. Variations between facilities can result from the use of different estimation methodologies. These factors should be taken into account when considering data accuracy.

As discussed above, the TRI data summarized in this report reflect chemical releases, transfers, and other waste management activities that occurred in the 1995 calendar year. Release and transfer patterns can change dramatically from one year to the next, so it is important to recognize that current facility activities may be different than those reported for 1995.

TRI reports reflect releases, transfers, and other waste management activities of chemicals, not exposures of the public to those chemicals. Release estimates alone are not sufficient to determine exposure or to calculate potential



adverse effects on human health and the environment. Although additional information is necessary to assess exposure and risk, TRI data

Toxicity of the Chemical:

Some high-volume releases of less toxic chemicals may appear to be a more serious problem than lower-volume releases of highly toxic chemicals, when just the opposite may be true.

can be used to identify areas of potential concern.

Furthermore, the TRI data, in conjunction with other information,

can be used as a starting point in evaluating exposures that may result from releases, transfers, and other waste management activities of toxic chemicals. The determination of potential risk depends upon many factors, including the toxicity of the chemical, the fate of the chemical after it is released, and the human or other populations that are exposed to the chemical after its release.

Exposure Considerations: The potential for exposure is greater the longer the chemical remains unchanged in the environment. Sunlight, heat, or microorganisms may or may not decompose the chemical.

For example, microorganisms readily degrade some chemicals, such as methanol, into less toxic chemicals; whereas metals are persistent and will not degrade upon release to the environment.

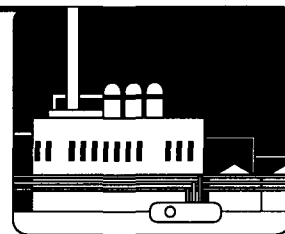
Medium: Chemical exposure of a population depends on the environmental medium to which a chemical is released. The medium also affects the types of exposures possible, such as inhalation, dermal exposure, or ingestion.

HOW CAN I OBTAIN ADDITIONAL TRI INFORMATION?

This report contains 1995 TRI data and limited comparison data for 1988, 1993 and 1994. A more detailed report will be issued in the Fall of 1997. This more comprehensive data release will analyze the TRI data by industry sector as well as provide some of the more detailed analyses presented in previous annual data release reports. The TRI data are available in an on-line computer database and in a variety of common computer and hard copy formats, to ensure that everyone can easily use the information. Information about accessing the TRI database is provided on the inside front cover of this report, as well as in Appendix B. The TRI User Support Service (202-260-1531) can provide assistance in accessing and using the TRI data.

To request copies of TRI and EPCRA documents or to obtain further information about the program, contact the toll-free Emergency Planning and Community Right-to-Know Information Hotline at 1-800-424-9346.

Other potential sources of TRI information include the state EPCRA section 313 contact, the EPA Regional Office, or the facility itself. Information about EPA Regional and state EPCRA section 313 contacts is found in Appendix A.



Chapter 3

TRI in Perspective

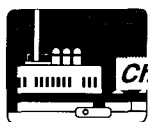
As the TRI program enters its tenth reporting year, the program has achieved enormous results. The public now has a much better picture of toxic chemical risks in their communities, while industry and government have better data for identifying opportunities and measuring successes in preventing pollution. This chapter presents an overview of recent and proposed expansions to the TRI. These expansions allow the TRI to provide even more valuable information to the general public and industry. The end of the chapter provides examples that illustrate the value of the TRI program, and includes the results of EPA's 33/50 Program.

TRI EXPANSION

There are few who would disagree that the 1987 Emergency Planning and Community Right-to-Know Act (EPCRA) provisions have proven to be among the most successful stimuli for reducing the amount of toxic chemicals that enter the environment. With specific reference to the TRI, this program has focused public and industry attention on the billions of pounds of toxic materials that are released directly into our air, our land and our water, are also injected underground, sent to landfills, or are recycled, burned

for energy recovery or otherwise treated. While all releases and transfers are not equal, and some may not lend themselves to reduction or elimination, the TRI has forced a hard look at our approach to the use of toxic chemicals. This hard look has been beneficial. Between 1988, the accepted baseline year for TRI, and 1995, industrial on-site releases have decreased by 45.6%, from 2.96 billion pounds to 1.61 billion pounds (see Chapter 5 for additional information). This reduction reflects the hard work of manufacturing facilities in SIC codes 20-39—facilities that have refined their processes, looked for source reduction opportunities, assured outstanding housekeeping practices and worked to minimize the footprint they leave on their surrounding environment. The TRI, designed to be non-intrusive, has provided the guide for all to use when seeking areas for environmental improvement.

One valid criticism of the program has been the limited breadth and depth of the chemical, facility and data coverage. In 1987, when the Congress passed EPCRA, 300-plus chemicals and chemical categories were presented as the "TRI Chemical List." This list was a combination of two existing chemical lists, the New



Jersey Environmental Hazardous Substance List and the Maryland Chemical Inventory Report List. Over time, through the EPA's petition process this original list has been modified as the Agency responded to petitions to add and delete chemicals, given the listing criteria. These criteria focus on both acute and chronic health effects as well as environmental effects. SIC codes 20-39 are the manufacturing sectors, which must report under EPCRA section 313. Data coverage was confined to information on releases and transfers.

Over time, EPA has worked to expand that coverage to other industrial sectors and other chemicals that have similar adverse impacts on our environment. Towards that end, the Agency has aggressively pursued an expansion strategy that would enlarge the boundaries of TRI in many directions. EPA has pursued a three-phase approach to broaden the scope of TRI. These phases include chemical expansion, facility expansion, and chemical use reporting. EPA recently proposed actions has transformed the TRI program and improved the public's access to information on chemicals in their communities. These changes include a significant expansion of the number of chemicals in the program to give the public a more complete picture of all the toxic chemicals in their communities and changes to improve the functionality of the program such as alternate reporting requirements for facilities with lower levels of reportable amounts.

The remainder of this chapter provides more detailed information on the following changes/expansions to the TRI program. Specifically, this chapter explores the following:

- Phase 1 - Chemical Expansion
- Phase 2 - Facility Expansion
- Phase 3 - Chemical Use Reporting

- Future TRI Modifications
- The 33/50 Program
- International Aspects of TRI

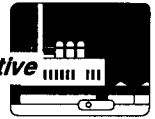
Phase 1: Chemical Expansion

The Phase 1 Expansion included two major actions. The first occurred in 1993 with the addition of certain RCRA chemicals and certain hydrochlorofluorocarbons (HCFCs) to EPCRA section 313.

The second action of this phase was the expansion of the TRI by adding 286 chemicals and chemical categories on November 30, 1994 (59 FR 61432).^① These 286 additional chemicals can be characterized as high or moderately high in terms of their toxicity and are currently manufactured, processed or used in the United States. This expansion of the chemical list raised the number of chemicals and chemical categories to over 600. Because these new chemicals and chemical categories became effective beginning with reporting year 1995, this Public Data Release is significantly impacted by these additions. Specifically, the rule added over 150 pesticides, certain Clean Air Act chemicals, certain Clean Water Act Priority Pollutants, and certain Safe Drinking Water Act chemicals. Many of the chemicals are carcinogens, reproductive toxicants, or developmental toxicants. Of particular note are the addition of industrial chemicals such as diisocyanates, n-hexane, n-methylpyrrolodone, and chemicals such as polycyclic aromatic compounds that result from the combustion of fuels.

While the addition of the close to 300 chemicals and chemical categories was a major component of the chemical expansion, the TRI chemical list is always fluid and dynamic. EPA continues to review other chemicals for addition, including

^① Of the 286 chemicals, 20 were diisocyanates and 19 were polyaromatic compounds. These are reported not as individual chemicals, but as 2 chemical compounds. Furthermore, 3 other chemicals have been remanded, and one chemical was not reportable for 1995 because of an administrative stay. Therefore, the number of reportable chemicals added to the TRI in 1995 was 245.



chemicals proposed for addition that were not listed because of the lack of available data as well as other chemicals, for example, persistent bioaccumulators. In addition, through the petition process, EPA may add or delete a number of chemicals each year. Chemicals may be added or deleted according to the toxicity criteria outlined in sections 313(c) and (d) of EPCRA.

In an effort to minimize the impact of reporting requirements, EPA has streamlined the reporting requirements for facilities with low-level releases of listed toxic chemicals. Beginning in 1995, facilities that have annual reportable amounts of a listed toxic chemical that do not exceed 500 pounds can apply a higher activity threshold in determining their reporting obligations. The annual reportable amount is defined as the total of all releases to the environment and other generated wastes containing the listed toxic chemical. If the facility does not manufacture or process or otherwise use over one million pounds of the listed chemical, the facility can use an alternative, less burdensome reporting option. Instead of filing the complete Form R detailing all its releases and waste management activities, the facility can file a much shorter certification statement form (Form A).

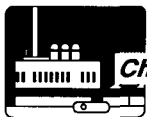
Phase 2: Facility Expansion

Since the enactment of EPCRA, the TRI program has been focused on the releases and other waste management activities of the manufacturing sector -- facilities classified as being primarily in the SIC codes 20-39. To provide the public with a more complete picture of the toxics in their community, EPA undertook a detailed examination of other, non-manufacturing industries to determine which of the industries may be significant generators of toxic chemical releases and wastes.

A number of factors were used to evaluate which industries would be considered for this expansion, including other available data on toxic chemical releases, the inter-relationship of non-manufacturing operations to manufacturing operations, the degree to which reporting would be expected to occur and the potential burden that TRI reporting might impose on these facilities. In 1996, EPA proposed adding industries that provide energy or raw materials to the manufacturing sector (e.g., mining) and those that receive or take away material from the manufacturing sector (e.g., petroleum bulk terminals and stations). Among the sectors being considered under this expansion are the following:

- Metal Mining (SIC code 10 except for SIC codes 1011, 1081, and 1094);
- Coal Mining (SIC code 12 except for extraction activities);
- Electrical utilities that combust coal and/or oil (SIC codes 4931 and 4939);
- Resource Conservation and Recovery Act (RCRA) Subtitle C hazardous waste treatment and disposal facilities (SIC code 4953);
- Chemicals and allied products wholesale distributors (SIC code 5169);
- Petroleum bulk stations and terminals (SIC code 5171); and
- Solvent recovery services (SIC code 7389).

As part of this rule, EPA revised the definition of otherwise use to clarify that the treatment for destruction, stabilization, and disposal of wastes received from other facilities is a reportable use. EPA estimates that over 6,100 additional facilities will submit over 37,000 additional Form R reports because of the addition of these industry groups. EPA will continue to review other industries for possible inclusion in the TRI program.



EPA is requiring facilities newly subject to the TRI requirements to report on activities for the remaining portion of 1997, with reports due by July 1, 1998. EPA is also planning an aggressive outreach campaign, including guidance, training, and technical assistance, to assist these newly added facilities in understanding their reporting obligations.

Phase 3: Chemical Use Reporting

Because of its accessibility, TRI serves as the public's primary source of environmental information on a local, regional, and national level. EPA believes that chemical use information could expand the public's ability to evaluate a range of important environmental issues at all these levels.

EPA has been actively exploring the nature, scope, and issues involved in requiring the collection of this information. Following several public meetings, extensive public dialogue, and the publication of several issue papers, EPA issued an Advance Notice of Proposed Rulemaking (ANPR). The purpose of the ANPR was: 1) to describe the Agency's plan to further evaluate these issues; 2) to provide preliminary notice of additional public meetings; 3) to request comments and information on issues where additional assessment is needed; 4) to solicit actual assessments that have been performed using materials use data; and 5) to initiate public input concerning the development of regulation on this issue. EPA's Phase 3 expansion to assess the utility of materials accounting data is commonly referred to as "chemical use expansion."

The importance of this initiative was illustrated in August 1995, when President Clinton, in a memorandum to the EPA Administrator, directed EPA to expedite TRI expansion. The memorandum directed EPA to develop "an expedited, open, and transparent process for consideration

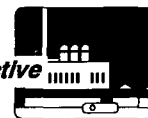
"I am committed to the effective implementation of this law [EPCRA] because Community Right-to-Know protections provide a basic informational tool to encourage informed community-based environmental decision making and provide a strong incentive for businesses to find their own ways of preventing pollution."

— President Bill Clinton

of reporting under EPCRA on information on the use of toxic chemicals at facilities, including information on mass balance, materials accounting, or other chemical use data."

The materials accounting information that EPA is considering focuses on the complete life cycle of chemicals used by subject facilities, including amounts of listed chemicals entering a facility, amounts transferred off-site in products or as wastes, amounts consumed in processing activities, and amounts released on site to all environmental media. EPA believes that chemical use data could provide communities and government with information to better evaluate facilities' source reduction and pollution prevention performance; focus emergency planning efforts related to the transportation of chemicals through their communities and the storage of chemicals within their communities; identify amounts of toxic chemicals in products distributed in commerce; and address worker safety and health issues.

In the course of EPA's public dialogue on chemical use expansion, the Agency has identified several significant issues which will require extensive review. These issues include defining the premise and utility of chemical use information; impacts on confidential business information; potential burdens on the regulated community; the relationship to Agency-wide environmental reporting priorities; and technical data collection and interpretive issues.



With the close of the comment period on February 28, 1997, EPA has begun reviewing the comments received. EPA expects to complete its evaluation of the comments and the issues identified in the coming year.

Future TRI Modifications

Pollution Prevention Act Reporting

Under the Pollution Prevention Act of 1990 (PPA), EPA is required to collect information on source reduction and recycling activities on the EPCRA section 313 reporting Form R. In September 1991, EPA changed the TRI to require that all facilities subject to reporting under section 313 provide the following:

- the quantity of the chemical (prior to recycling, treatment, or disposal) entering any waste stream or released to the environment;
- the quantities of the chemical recycled at the facility and elsewhere;
- the quantities of the chemical treated at the facility and elsewhere;
- information on source reduction activities and the methods used to identify those activities;
- the quantities of the chemical released in one-time events not associated with production processes;
- the quantities of the chemical expected to enter any waste stream or be recycled in future years; and
- a production ratio or activity index for the reported chemical.

This change in the program generated many comments (e.g., definitions of waste stream, reportable recycling, and in-process recycling) from industry, environmental groups, and the public. Therefore, EPA sought to develop a

consensus approach through a special subcommittee of the National Advisory Committee on Environmental Protection and Technology (NACEPT) which is composed of industry, environmental groups and governmental agencies.

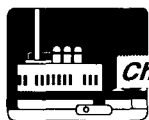
As a result of those discussions, the Agency is currently developing a schedule for publishing a supplemental notice of proposed rulemaking (SNPR) and final rule.

Form R Redesign

Since 1987, EPA has used the Form R to collect the facility specific information required by TRI. The form has undergone a number of changes over the years, most especially in 1990 when the form was redesigned to capture the data required by the PPA. Each year, EPA distributes the Form R to all facilities that reported in the previous year and supplies both paper and electronic versions of the format.

Beginning in 1997, EPA will be initiating an assessment of the current Form R and will be redesigning the form to accommodate a number of concerns which have arisen over time. As a first step, the form for collecting 1996 data will provide the opportunity to distinguish between Class I underground injection wells and all other types of injection wells. It will also provide a separate category for RCRA Subtitle C landfills as distinguished from all other landfills. In addition, the title of Section 5 of the Form R, previously named "Releases of the Toxic Chemical to the Environment On-Site" will be changed to "Quantities of the Toxic Chemical Entering Each Environmental Medium."

Beyond the changes which EPA will make on the 1996 form, the Agency will be working with industry, states, academia and other non-governmental organizations to identify other modifications to the form to make it a more



effective tool for communicating information about releases and transfers of chemicals to the public. Issues that will be addressed include changes to section 8 currently named "Source Reduction and Recycling Activities," to better reflect pounds of waste generated as distinguished from pounds of waste managed, changes to the nomenclature for underground injection and land disposal as well as modifications that may result from finalization of the PPA reporting requirements for Form R. EPA hopes to have a newly revised and complete form for the 1997 reporting year.

Persistent Bioaccumulators

EPA is considering adding some toxic persistent bioaccumulators to TRI. EPA is also exploring how to get information on extremely toxic persistent bioaccumulators to the public through TRI, possibly by reducing the reporting threshold for these chemicals. EPA is considering lowering the thresholds because releases of TRI chemicals that are toxic persistent bioaccumulators may not be reported because the chemicals may be manufactured below the reporting thresholds and because small release amounts may build up in the environment.

Toxic persistent bioaccumulators are chemicals that are stable in the environment for long periods of time (sometimes many years), build up in the environment, particularly in food chains, and are toxic to humans and/or animals and plants. Examples of toxic persistent bioaccumulators include: high-volume industrial chemicals, such as hexachlorobenzene, which is used to manufacture other chemicals; currently produced pesticides, such as lindane; metals, such as lead and mercury compounds; and byproducts of

Some toxic persistent bioaccumulators listed on the Toxics Release Inventory

Chemical	Source/Use
Chlordane	Pesticide; no longer in use in the U.S.
Benzo(a)anthracene	Burning of coal, oil
Mercury compounds	Many industrial uses
Lindane	Pesticide; currently in use in the U.S.
PCBs	No longer in production, but still found in electrical equipment

industrial processes or products of combustion during waste destruction or energy generation, such as benzo(a)anthracene.

Some toxic persistent bioaccumulators are pesticides and industrial chemicals no longer in production in the United States but still present in the environment. Chlordane and polychlorinated biphenyls (PCBs) are good examples of such chemicals. Even though those chemicals are no longer in production, releases are reported to EPA and appear on TRI. The chemicals appear on TRI because they are being treated or disposed of by chemical manufacturers, federal facilities, or other industrial sources that made or used the now-discontinued chemicals. Reporting of releases of toxic persistent bioaccumulators no longer in production may increase once the facility expansion rule is finalized, since hazardous waste facilities are one of the industries that will have to report to the TRI.



Hazard Assessments

One issue that arose out of the review of chemicals for addition to the TRI list of reportable chemicals was the need to conduct a hazard assessment of the existing chemicals to determine if these substances meet the toxicity criteria. The original listed chemicals were mandated by Congress and received no scientific review by EPA before being placed in the TRI. Currently, EPA is conducting a detailed hazard assessment of these existing chemicals to determine whether these chemicals meet the toxicity criteria for listing as specified in the statute. Following this detailed review, the Agency may take action to remove or modify the listings of those chemicals that do not meet the toxicity criteria.

33/50 PROGRAM

EPA established the 33/50 Program in 1991. This program was EPA's first voluntary initiative aimed at reducing the releases and transfers of toxic chemicals. The name is derived from the program's two numeric goals: a 33% reduction by 1992 and a 50% reduction by 1995. The baseline year was 1988. But the 33/50 Program was not just about decreases in releases and transfers. Equally important was how industry would achieve those reductions. EPA wanted to use the 33/50 Program as a vehicle for moving toward a greater reliance on pollution prevention, rather than the traditional end-of-pipe control methods. Through a voluntary approach, EPA also intended to build on the growing dialogue and cooperation with industry on environmental matters.

From the list of TRI chemicals, EPA selected 17 chemicals for the 33/50 Program. EPA selected these substances as priority chemicals based on their relative toxicity, volumes of use, and the potential for pollution prevention opportunities.

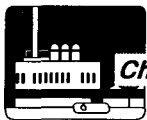
17 Chemicals Selected for the 33/50 Program

Benzene	Methyl ethyl ketone
Cadmium and compounds	Methyl isobutyl ketone
Carbon tetrachloride	Nickel and compounds
Chloroform	Tetrachloroethylene
Chromium and compounds	Toluene
Cyanide compounds	1,1,1-Trichloroethane
Dichloromethane	Trichloroethylene
Lead and compounds	Xylenes
Mercury and compounds	

The availability of the 1995 TRI data provides the final year of data for the 33/50 Program. The results have been positive. Almost 1,300 companies, representing over 6,000 facilities, participated in the 33/50 Program. The 1992 goal to reduce releases and transfers by 33% was met one year early with 1991 data. Likewise, the 1995 goal of 50% was achieved with 1994 data, also a year ahead of schedule. The final tally was a reduction of 55.6% from 1988 to 1995 for the 17 chemicals.

An EPA-sponsored study revealed some impressive distinctions between 33/50 participants and other companies reporting to TRI. For instance, in the study population, 58% of the reductions in releases and transfers of 33/50 chemicals was due to pollution prevention (source reduction), while the corresponding figure for other TRI chemicals was only 5%. For the first time, the study distinguished "real" reductions from changes in accounting methods—only 2% of 33/50 reductions was due to "paper" changes. The results of this study will soon be published in peer-reviewed journals.

The success of this program has shown how EPA and industry can work positively in a cooperative fashion. EPA is evaluating the results and lessons learned from the 33/50 Program. Discussions are underway to determine the benefits of additional voluntary programs that would encourage pollution prevention activities and reduce releases and transfers.



INTERNATIONAL ASPECTS OF TRI

Toxic chemical releases know no boundaries. While TRI data provide a wealth of information about releases and transfers of toxic chemicals within the United States, information on releases and transfers coming from other countries is limited. This, however, is changing. There are an increasing number of countries developing TRI-like systems. The international term for these systems is Pollutant Release and Transfer Registers (PRTRs).

The real stimulus for PRTRs was the 1992 United Nations conference on the environment, popularly known as the Earth Summit. One of the conclusions from this conference was the benefit of PRTRs. Countries were encouraged to develop these systems. In an important step, the Earth Summit also linked these PRTR systems with public right to know, an integral aspect of TRI.

From 1992 to the present, there has been a growing interest in PRTRs. The Organization for Economic Co-operation and Development (OECD), an organization of the industrialized democracies, decided to create a guidance document for governments on PRTRs. The development of this guidance manual included the participation of representatives from government, industry and other non-governmental organizations. The speed and success of the guidance document spurred the OECD environment ministers to issue a Council Recommendation which encouraged all OECD nations to establish PRTR systems.

For industrializing nations, the United Nations Institute for Training and Research (UNITAR) has developed a step by step process, with accompanying guidance manuals, on how to implement a PRTR system. In an initial phase, UNITAR selected three countries to serve in a pilot program (Mexico, Czech Republic, Egypt). Building on the lessons learned from this pilot

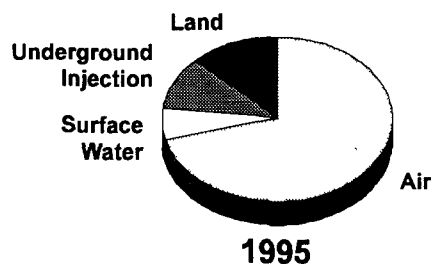
project, UNITAR will work with additional industrializing nations. Among the nations which have expressed an interest are Vietnam, South Africa and Hungary.

There presently are six nations with PRTR systems (Canada, France, Netherlands, Norway, United Kingdom, United States). Many more nations are in various stages of establishing a system (Australia, Czech Republic, Denmark, European Union, Finland, Japan, Mexico, Sweden, Switzerland). With the Earth Summit, the OECD and other international organizations stressing the importance and value of PRTR systems, still more nations are considering taking similar steps.

North America offers the first opportunity to collect PRTR data on a continental scale. Both the United States and Canada have PRTR systems. Mexico conducted a pilot study in 1996 and expects to have its first complete PRTR data in 1999. As a first step, EPA produced a document which compiles PRTR data along the U.S.-Canada border and on the U.S. side of the U.S.-Mexico border. Environment Canada, working with EPA's Region 5, developed a report on PRTR data around the Great Lakes. Building on this work is the Commission on Environmental Cooperation (CEC), the organization created by the environmental side agreements to the North American Free Trade Agreement (NAFTA). The CEC is responsible for the development of two important reports. The first (just recently completed) compares the PRTR systems in the three NAFTA nations. The second compiles data from the U.S. and Canadian PRTRs for 1994 and reports on Mexico's completed pilot study.

The United States will continue to work closely with the other countries and international organizations working on PRTR issues. The expanding work on PRTRs will require the enduring commitment and guidance of the United States and rely on the growing experience of the TRI.

Chapter 4



1995 Toxics Release Inventory

This chapter provides information reported by facilities for calendar year 1995. It includes data facilities submitted for all chemicals reportable for 1995, including the 286 newly added chemicals and chemical categories.^❶ The chapter presents releases of these toxic chemicals from the facilities as well as transfers of chemicals in waste to off-site locations for further processing or disposal. It also presents data on management of TRI chemicals in waste on-site or by transfer off-site. Each section supplies an overview of national data and summary analyses by state, industry, and chemical.

TRI Releases and Transfers

Box 4-1 describes on-site releases reportable to TRI and the types of activities that may contribute releases to various environmental media. Box 4-2 lists off-site transfers for waste management or further processing that are reportable to TRI.

^❶ Of the 286 chemicals, 20 were diisocyanates and 19 were polyaromatic compounds. These are reported not as individual chemicals, but as 2 chemical compounds. Furthermore, 3 other chemicals have been remanded, and one chemical was not reportable for 1995 because of an administrative stay. Therefore, the number of reportable chemicals added to the TRI in 1995 was 245.

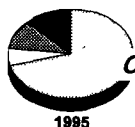
WHAT TO CONSIDER WHEN USING TRI DATA

Users of TRI information should be aware that TRI data reflect releases and transfers of chemicals, not exposures of the public to those chemicals. The TRI data, in conjunction with other information, can be used as a starting point in evaluating exposures that may result from releases and transfers of toxic chemicals. The determination of potential risk depends upon many factors, including the toxicity of the chemical, the fate of the chemical after it is released, and the human or other populations that are exposed to the chemical after its release. Listed below are some of the factors that should be considered when reviewing TRI data.

Toxicity of the Chemical

The TRI list consists of chemicals that vary widely in their ability to produce toxic effects.

- ◆ Some high-volume releases of less toxic chemicals may appear to be a more serious



An Explanation of Releases

Releases. A release is an on-site discharge of a toxic chemical to the environment. This includes emissions to the air, discharges to bodies of water, releases at the facility to land, as well as contained disposal into underground injection wells. Releases are reported to TRI by media type.

Releases to Air. Releases to air are reported either as stack or fugitive emissions. Stack emissions are releases to air that occur through confined air streams, such as stacks, vents, ducts, or pipes. Fugitive emissions are all releases to air that are not released through a confined air stream. Fugitive emissions include equipment leaks, evaporative losses from surface impoundments and spills, and releases from building ventilation systems.

Releases to Water. Releases to water include discharges to streams, rivers, lakes, oceans, and other bodies of water. This includes releases from contained sources, such as industrial process outflow pipes or open trenches. Releases due to runoff, including stormwater runoff, are also reportable to TRI.

Underground Injection. Underground injection is a contained release of a fluid into a subsurface well for the purpose of waste disposal. Wastes containing TRI chemicals are injected into either Class I wells or Class V wells. Class I wells are used to inject liquid hazardous wastes or dispose of industrial and municipal wastewaters beneath the lowermost underground source of drinking water. Class V wells are generally used to inject non-hazardous fluid into or above an underground source of drinking water. TRI reporting does not currently distinguish between these two types of wells, although there are important differences in environmental impact between these two methods of injection. However, 1996 reports will provide this distinction.

Releases to Land. Releases to land occur within the boundaries of the reporting facility. Releases to land include disposal of toxic chemicals in landfills (in which wastes are buried), land treatment/application farming (in which a waste containing a listed chemical is applied to or incorporated into soil), surface impoundments (which are uncovered holding areas used to volatilize and/or settle waste materials), and other land disposal methods (such as spills, leaks, or waste piles). For the 1996 reporting year, reporters will be requested to distinguish between RCRA subtitle C landfills and all other landfills.

Box 4-1. An Explanation of Releases.

problem than lower-volume releases of highly toxic chemicals, when just the opposite may be true.

For example, phosgene is toxic in smaller quantities than methanol, and a comparison between these two chemicals for setting hazard priorities or estimating potential health concerns, solely on the basis of volume released, may be misleading.

Exposure Considerations

- ◆ Potential degradation or persistence of the chemical in the environment.

Exposure to a chemical is dependent upon the chemical being available. The potential for exposure is greater the longer the chemical remains unchanged in the environment. Sunlight, heat, or microorganisms may or may not decompose the chemical.

- For example, microorganisms readily degrade some chemicals, such as methanol, into less toxic chemicals; volatile organic chemicals, such as ethylene and propylene, react in the atmosphere, contributing to the formation of smog; metals are persistent and will not degrade upon release to the environment.



An Explanation of Transfers

Off-site Transfers. An off-site transfer is a transfer of toxic chemicals in waste to a facility that is geographically or physically separate from the facility reporting under TRI. Chemicals reported to TRI as transferred are sent to off-site facilities for the purposes of recycling, energy recovery, treatment, or disposal. The quantities reported represent a movement of the chemical away from the reporting facility. Except for off-site transfers for disposal, these quantities do not necessarily represent entry of the chemical into the environment.

Transfers to Publicly Owned Treatment Works (POTWs). A POTW is a wastewater treatment facility that is owned by a state or municipality. Wastewaters from facilities reporting under TRI are transferred through pipes or sewers to a POTW. Treatment or removal of a chemical from the wastewater depends upon the nature of the chemical, as well as the treatment methods present at the POTW. In general, chemicals that are easily utilized as nutrients by microorganisms, or have a low solubility in water, are likely to be removed to some extent. Chemicals that are volatile and have a low solubility in water may evaporate into the atmosphere. Not all TRI chemicals can be treated or removed by a POTW. Some chemicals, such as metals, may be removed, but are not destroyed and may be disposed of in landfills or discharged to receiving waters.

Transfers Off-site for Recycling. Toxic chemicals in waste that are sent off-site for the purposes of recycling are generally recovered or regenerated by a variety of recycling methods, including solvent recovery, metals recovery, and acid regeneration. The choice of the recycling method depends on the toxic chemical being sent for recycling. Once they have been recycled, these chemicals may be returned to the originating facility for further processing or made available for use in commerce.

Transfers Off-site for Energy Recovery. Toxic chemicals in waste sent off-site for purposes of energy recovery are combusted off-site in industrial furnaces (including kilns) or boilers that generate heat or energy for use at that location. Treatment of a chemical by incineration is not considered to be energy recovery.

Transfers Off-site for Treatment. Toxic chemicals in waste that are transferred off-site may be treated through a variety of methods, including biological treatment, neutralization, incineration, and physical separation. These methods typically result in varying degrees of destruction of the toxic chemical. In some cases (such as stabilization or solidification), the chemical is not destroyed but is prepared for further waste management, such as contained disposal.

Transfers Off-site for Disposal. Toxic chemicals in waste that are transferred to a facility for disposal generally are either released to land (see Box 1-1) at an off-site facility or are injected underground.

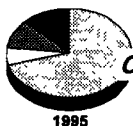
Other Off-site Transfers. In this report, toxic chemicals in waste that were reported as transferred off-site but for which the off-site activity (i.e., treatment, disposal, energy recovery, or recycling) was not specified or was not an accepted code have been classified as "other off-site transfers."

Box 4-2. An Explanation of Transfers.

- As a result, smaller releases of a persistent highly toxic chemical may create a more serious problem than larger releases of a chemical that is rapidly converted to a less toxic form.
- ◆ Bioconcentration of the chemical in the food chain.

As a chemical becomes incorporated in the food chain, it may concentrate or disperse as it moves up the food chain.

- Some chemicals, such as mercury, will accumulate as they move up the food chain.



- Small releases of a chemical that bioaccumulates may result in significant exposures to consumers.
- ◆ The environmental medium (air, water, land, or underground injection) to which the toxic chemical has been released.

Chemical exposure of a population depends on the environmental medium to which a chemical is released. The medium also affects the types of exposures possible, such as inhalation, dermal exposure, or ingestion.

- Releases of a chemical to the air can result in exposures to organisms living near and downwind from facilities releasing toxic chemicals to the atmosphere. Persistent chemicals may fall or be rained out of air onto land or into water bodies, resulting in exposures via these environmental media.
- Exposures that may result from releases to water bodies (streams, lakes, etc.) depend in part on the downstream uses of the water, including drinking, cooking, and bathing.
- Injection of toxic chemicals into properly designed and constructed Class I wells will result in substantially lower exposure potential than more direct forms of environmental release. These wells are designed to entomb liquid wastes for at least 10,000 years.
- ◆ The type of off-site facility receiving the chemical and the efficiency of its waste management practices.

The amount of a toxic chemical that ultimately enters the environment depends upon how the chemical was handled during disposal, treatment, energy recovery, or

recycling activities. Several factors to keep in mind when considering amounts sent off-site are presented below.

- The efficiency of recycling operations varies depending upon the method of recycling and the chemical being recycled.
- Use of a combustible toxic chemical for energy recovery typically results in the destruction of 95% to 99% or more of the toxic chemical. The remaining quantity may be either released to air or disposed of in ash to land.
- The efficiency of the treatment of toxic chemicals in waste sent to sewage treatment plants varies depending on the chemical and the sewage plant. Some high-volume pollutants such as methanol are readily degraded by most sewage treatment plants. Other high-volume chemicals such as ammonia are not readily treated by most sewage treatment plants and will pass through the plant into the aquatic environment. The efficiency of other treatment methods, such as incineration, also depends upon the specifications of the treatment facility and the nature of the chemical.
- Toxic chemicals in waste sent off-site for disposal are typically released to land or injected underground.

Further information on the use of TRI data in determining potential risks can be found in "Toxic Chemical Risk Screening Guide" (EPA 560/2-89-C02), July 1989.

1995 NATIONAL OVERVIEW

In this chapter, all chemicals reported under TRI are discussed and analyzed, including those added in the chemical expansion for the 1995



1995

1995 Releases	Pounds
Total Releases	2,208,749,411
Fugitive Air	385,094,609
Point Source Air	1,177,227,504
Surface Water	136,315,624
Underground Injection	234,979,709
On-site Land Releases	275,131,965

Table 4-1. TRI Releases, 1995.

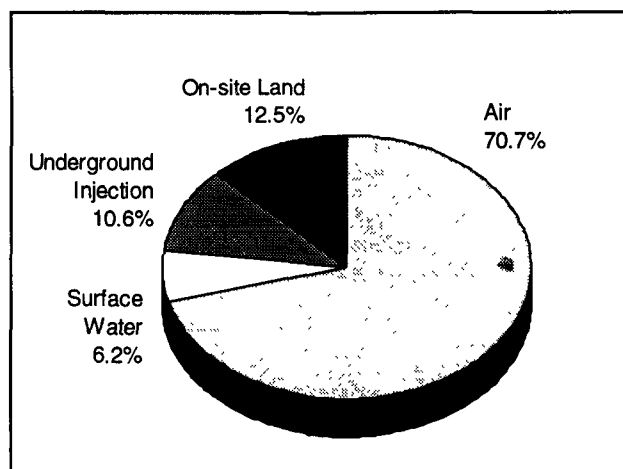


Figure 4-1. Distribution of TRI Releases, 1995.

1995 Transfers	Pounds
Total Transfers	3,534,827,951
Transfers to Recycling	2,213,731,389
Transfers to Energy Recovery	512,029,726
Transfers to Treatment	287,576,863
Transfers to POTWs	239,836,516
Transfers to Disposal	279,222,397
Other Off-site Transfers ²	2,431,060

Table 4-2. TRI Transfers, 1995.

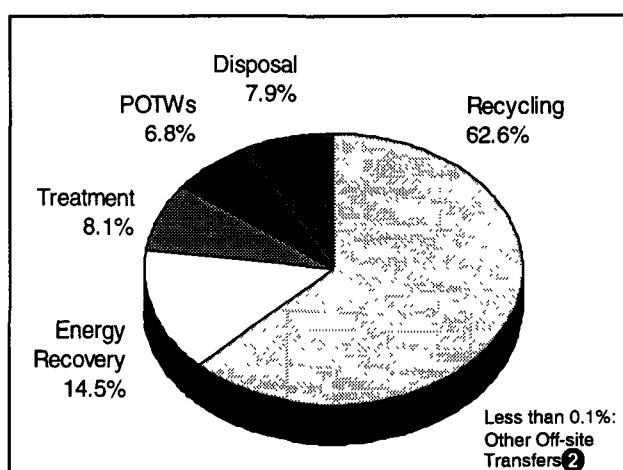


Figure 4-2. Distribution of TRI Transfers, 1995.

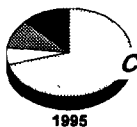
reporting year. Chapter 5 examines chemical reporting over time, using only those chemicals required to be reported in the prior years.

In 1995, 21,951 facilities filed 73,311 TRI reporting forms. These facilities reported releasing nearly 2.21 billion pounds of toxic chemicals into the environment (see Table 4-1). This includes amounts released directly to the air, water, or land, as well as disposal of toxic chemicals on-site in landfills, impoundments, waste piles, and underground injection wells.

Air emissions totaled 1.56 billion pounds, or 70.7% of all releases in 1995 (see Figure 4-1). Facilities report their air releases as either point source (stack) emissions or as fugitive (non-point source) emissions. Three-quarters (75.4%) of air releases reported to TRI in 1995 were point source emissions.

Facilities discharged 136.3 million pounds of toxic chemicals into the nation's rivers, lakes, bays, and other bodies of water in 1995. This represents 6.2% of all releases in 1995. Nearly 235.0 million pounds (10.6%) of toxic chemi-

² Transfers reported without valid waste management codes.



cals were injected into underground wells, and 275.1 million pounds (12.5%) were released to land. These tables represent underground injection as a release to the environment.

Facilities sent 3.53 billion pounds of toxic chemicals to off-site locations for treatment, disposal, energy recovery, and recycling in 1995 (see Table 4-2). The great majority of these off-site transfers (2.21 billion pounds, or 62.6%) was sent off-site to be recycled (see Figure 4-2). Another 512.0 million pounds (14.5%) of toxic chemicals were sent off-site to be burned for energy recovery. Transfers to other locations for treatment totaled 287.6 million pounds, or 8.1%, while transfers to Publicly Owned Treatment Works (POTWs, or sewage treatment plants) totaled 239.8 million pounds, or 6.8%. Transfers of toxic chemicals off-site for disposal totaled 279.2 million pounds, or 7.9%. An additional 2.4 million pounds of toxic chemicals reported as transferred off-site were reported with no waste management codes or invalid codes and are listed as “Other Off-site Transfers.”

“Form A” Reporting

Of the 73,311 TRI reporting forms submitted in 1995, 6,437 are “certification” forms that do not report amounts of chemical releases, transfers, and on-site waste management activities. EPA established a reduced reporting option, beginning in 1995, for facilities that meet TRI reporting thresholds for a listed chemical (manufacturing or processing 25,000 pounds or otherwise using 10,000 pounds), but whose “total annual reportable amount” for that chemical does not exceed 500 pounds. The total annual reportable amount is the sum of the waste management categories that would be reported to TRI. Waste management categories include: quantities released (including disposal), recovered as a result of recycling operations, combusted for energy recovery, or treated at the

facility, plus amounts transferred off-site for recycling, energy recovery, treatment, and/or disposal. These amounts correspond to total production-related waste in this report.

A facility that does not exceed the 500-pound criterion and does not manufacture, process, or otherwise use more than 1 million pounds of the chemical during the year is eligible to submit a “certification” form. This form identifies the facility and chemical but does not require reporting of any amounts. The number of these forms submitted appears as “Form As” on the tables in this chapter.

TRI CHEMICAL EXPANSION FOR THE 1995 REPORTING YEAR

Beginning with the 1995 reporting year, EPA added 286 chemicals and chemical categories to TRI, nearly doubling its previous chemical coverage (see Box 4-3.). As shown in Table 4-3, releases of the newly added chemicals totaled 237.7 million pounds, which represents one tenth (10.8%) of releases reported for all TRI chemicals in 1995. Off-site transfers totaled 155.1 million pounds, a much smaller portion (4.4%) of transfers reported for all TRI chemicals. As discussed later in this chapter, total production-related waste of the new chemicals account for 32.2% of production-related waste of all chemicals.

Facilities submitted 4,410 forms on the added chemicals; one in seven were Form As. Average releases per Form R for the new chemicals was almost double the average releases per Form R for all TRI chemicals reported in 1995. The pounds/Form R are 63,359 for the new chemicals and 33,029 for all TRI chemicals. There were 499 facilities that reported only on the new chemicals—2.3% of all facilities that reported in 1995.



1995

Table 4-3. TRI Releases and Transfers, Newly Added Chemicals Compared to Other TRI Chemicals, 1995.

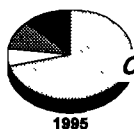
	Newly Added Chemicals Number	All TRI Chemicals Number	Newly Added as Percent of All TRI Chemicals Percent
Total Forms	4,410	73,311	6.0
Form As	658	6,437	10.2
	Pounds	Pounds	Percent
Total Air Emissions	89,474,626	1,562,322,113	5.7
Fugitive Air	26,370,105	385,094,609	6.8
Point Source Air	63,104,521	1,177,227,504	5.4
Surface Water Discharges	90,243,306	136,315,624	66.2
Underground Injection	54,116,863	234,979,709	23.0
On-site Land Releases	3,887,775	275,131,965	1.4
Total Releases	237,722,570	2,208,749,411	10.8
Transfers to Recycling	29,473,788	2,213,731,389	1.3
Transfers to Energy Recovery	24,832,143	512,029,726	4.8
Transfers to Treatment	31,029,283	287,576,863	10.8
Transfers to POTWs	59,387,743	239,836,516	24.8
Transfers to Disposal	10,357,700	279,222,397	3.7
Other Off-site Transfers ^③	7,734	2,431,060	0.3
Total Transfers	155,088,391	3,534,827,951	4.4
Total Releases and Transfers	392,810,961	5,743,577,362	6.8

Number of Chemicals Added for the Reporting Year 1995

On November 30, 1994, EPA finalized a rule that added 286 chemicals and chemical categories to the EPCRA section 313 list of toxic chemicals. The 286 number includes 243 individually listed chemicals, 19 chemicals in the polycyclic aromatic compounds (PACs) category, 20 chemicals in the diisocyanates category, and four other chemical categories. Counting the diisocyanates category and the PACs category as two new categories rather than as 39 chemicals, the number of chemicals and chemical categories added is 249 (243 individually listed chemicals and six chemical categories). However, in the spring of 1996, three chemicals [dimethyldichlorosilane (CAS# 75-78-5), methyltrichlorosilane (CAS# 75-79-6), and trimethylchlorosilane (CAS# 75-77-4)] were voluntarily remanded from the list. In addition, one chemical [2,2-dibromo-3-nitrilopropionamide (CAS# 10222-01-2)] is under an administrative stay and was not reportable for the 1995 reporting year. Therefore, the number of new chemicals and chemical categories reportable for the 1995 reporting year is 282. While the two categories, diisocyanates and polycyclic aromatic compounds, list 39 chemicals out of the 282, the 39 chemicals are not reported separately. One Form R is submitted for all chemicals in each of the categories. These two categories are the only ones of the TRI categories that list individual chemicals.

Box 4-3. Number of Chemicals Added for the Reporting Year 1995

③ Transfers reported without valid waste management codes.



EPA sees many benefits of the information reported for the newly added chemicals. For example, many of these newly added chemicals are chemicals potentially affecting children's health, others are carcinogens and toxic chemicals used as pesticides, and some are released in great quantities to the air, potentially affecting air quality and respiratory health. However, the volume of reported releases is only one important piece of information. It must be combined with hazard and exposure data for a chemical. The original TRI list of chemicals captured most of the high production volume chemicals, so the reported releases of most newly added chemicals are lower, but the newly added chemicals all demonstrate high to moderately high toxicity and the reporting of their releases to the environment provides important right-to-know information.

The chemicals added for the 1995 reporting year were added as a result of efforts to review many different types of chemicals and discern which meet the EPCRA section 313 listing criteria. In performing the chemical expansion, data on the chemicals and chemical categories were reviewed for evidence indicating adverse acute toxicity, carcinogenicity, mutagenicity, developmental and reproductive effects, neurotoxicity, other chronic effects, and environmental effects. Information on environmental fate was also reviewed. For each chemical proposed for addition to EPCRA section 313 in this rule-making, EPA conducted an extensive hazard assessment to determine whether the chemical met one or more of the EPCRA section 313 (d)(2) listing criteria. Only after this careful review was a final determination made as to whether one of the EPCRA section 313 (d)(2) listing criteria was met for an individual chemical or chemical category. EPA need only show that one of the listing criteria is met in order to list a chemical or chemical category

under EPCRA section 313, therefore the proposed and final rules that added these chemicals did not necessarily address all endpoints of concern for a particular chemical.

Although only 6.0% of all forms submitted were for newly added chemicals, they account for two thirds (66.2%) of all surface water discharges and 23.0% of underground injections, as Table 4-3 illustrates. One addition to the TRI list for 1995 accounts for most of this difference: More nitrate compounds, newly reportable in 1995, are discharged to water than any other chemical on the TRI list (88.5 million pounds). Nitrate compounds are also the chemical most reported—among all TRI chemicals—as injected to underground wells (46.3 million pounds).

This reporting of nitrate compounds significantly influences the distribution by type of release for newly added chemicals, as compared to that of other TRI chemicals (see Table 4-4). Surface water discharges account for 38.0% of releases reported for the 286 new chemicals and chemical categories, but only 2.3% of the releases reported for all other TRI chemicals. Facilities also reported underground injection amounting to 22.8% of all releases for the new chemicals, compared to 9.2% for other TRI chemicals.

Table 4-5 shows the differences in distribution of transfers (by waste management activity) of the chemicals added for the 1995 reporting year, compared to chemicals already on the TRI list. Transfers to POTWs account for 38.3% of transfers for the new chemicals, compared to 5.3% for other TRI chemicals. Transfers to treatment represent 20.0% of all transfers of added chemicals and 7.6% of transfers of previously reportable chemicals. For the newly added chemicals, transfers to recycling and energy recovery are correspondingly smaller.

**Table 4-4. TRI Releases by Release Type, Newly Added Chemicals Compared to Other TRI Chemicals, 1995.**

	Newly Added Chemicals Pounds	Percent of Total Percent	Other TRI Chemicals Pounds	Percent of Total Percent	All TRI Chemicals Pounds	Percent of Total Percent
Total Air Emissions	89,474,626	37.6	1,472,847,487	74.7	1,562,322,113	70.7
Fugitive Air	26,370,105	11.1	358,724,504	18.2	385,094,609	17.4
Point Source Air	63,104,521	26.5	1,114,122,983	56.5	1,177,227,504	53.3
Surface Water Discharges	90,243,306	38.0	46,072,318	2.3	136,315,624	6.2
Underground Injection	54,116,863	22.8	180,862,846	9.2	234,979,709	10.6
On-site Land Releases	3,887,775	1.6	271,244,190	13.8	275,131,965	12.5
Total Releases	237,722,570	100.0	1,971,026,841	100.0	2,208,749,411	100.0

Table 4-5. TRI Transfers by Waste Management Activity, Newly Added Chemicals Compared to Other TRI Chemicals, 1995.

	Newly Added Chemicals Pounds	Percent of Total Percent	Other TRI Chemicals Pounds	Percent of Total Percent	All TRI Chemicals Pounds	Percent of Total Percent
Transfers to Recycling	29,473,788	19.0	2,184,257,601	64.6	2,213,731,389	62.6
Transfers to Energy Recovery	24,832,143	16.0	487,197,583	14.4	512,029,726	14.5
Transfers to Treatment	31,029,283	20.0	256,547,580	7.6	287,576,863	8.1
Transfers to POTWs	59,387,743	38.3	180,448,773	5.3	239,836,516	6.8
Transfers to Disposal	10,357,700	6.7	268,864,697	8.0	279,222,397	7.9
Other Off-site Transfers ⁴	7,734	0.0	2,423,326	0.1	2,431,060	0.1
Total Transfers	155,088,391	100.0	3,379,739,560	100.0	3,534,827,951	100.0

1995 TRI DATA BY STATE

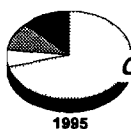
Tables 4-6 and 4-7 present the distribution of TRI releases and transfers by state. No reports were received in 1995 for the Northern Mariana Islands.

The top states for total releases for 1995 reporting were Texas with 283.9 million pounds, Louisiana with 172.3 million pounds, Ohio with 121.9 million pounds, Tennessee with 111.2 million pounds, and Alabama with 102.8 million pounds. Third-ranked Ohio had the largest number of reporting facilities (1,623) and Form As (485) in 1995, but Texas had a greater

number of total forms (5,705). California, with the second largest number of reporting facilities (1,478) and the fourth largest number of total forms (4,151), ranked 19th for total releases. In contrast, Louisiana had 314 reporting facilities—fewer than 25 other states—but ranked second for total releases.

States reporting the largest volumes to individual media in 1995 were Texas, 128.7 million pounds emitted to air and 118.9 million pounds injected underground; Louisiana 28.3 million pounds discharged to surface water; and Montana, 39.4 million pounds released on-site to land.

⁴ Transfers reported without valid waste management codes.



Chapter 4 — 1995 TRI Releases and Transfers

Table 4-6. TRI Releases by State, 1995 (Alphabetically Ordered).

State	Facilities Number	Total Forms Number	Form As Number	Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
Alabama	520	1,927	212	91,867,818	3,589,626	16	7,307,586	102,765,046
Alaska	10	40	6	5,405,584	1,070,617	193	483,911	6,960,305
American Samoa	1	1	0	5,300	0	0	0	5,300
Arizona	187	491	48	7,306,986	4,829	14	28,520,806	35,832,635
Arkansas	387	1,260	117	29,792,097	916,093	2,637,068	1,336,719	34,681,977
California	1,478	4,151	348	36,819,632	2,641,665	478,974	2,786,805	42,727,076
Colorado	182	495	78	4,159,933	294,179	0	121,314	4,575,426
Connecticut	329	958	43	7,179,523	1,489,456	0	95,110	8,764,089
Delaware	71	243	29	4,209,960	286,148	0	14,327	4,510,435
District of Columbia	3	5	0	10,460	255	0	19,000	29,715
Florida	528	1,384	160	32,028,305	821,305	25,343,332	25,779,920	83,972,862
Georgia	718	2,259	381	47,606,516	6,345,066	0	1,572,312	55,523,894
Guam	1	1	0	0	3,100	0	0	3,100
Hawaii	16	57	11	443,607	1,510	24,306	545	469,968
Idaho	60	183	10	4,689,903	1,390,186	0	2,107,947	8,188,036
Illinois	1,334	4,489	419	70,935,342	5,779,855	365	23,037,696	99,753,258
Indiana	1,008	3,299	221	70,573,627	2,357,535	3,398	6,843,418	79,777,978
Iowa	410	1,184	109	29,600,556	3,783,443	0	1,381,081	34,765,080
Kansas	279	952	71	19,450,900	394,121	1,674,129	1,297,174	22,816,324
Kentucky	418	1,560	98	40,703,729	432,680	0	788,794	41,925,203
Louisiana	314	2,118	159	84,841,485	28,268,576	54,494,533	4,654,598	172,259,192
Maine	92	325	38	9,242,209	610,781	0	314,865	10,167,855
Maryland	194	610	74	8,868,815	1,881,350	0	2,571,728	13,321,893
Massachusetts	509	1,424	125	7,996,222	116,200	0	28,631	8,141,053
Michigan	903	3,303	208	62,996,379	653,999	7,566,827	4,046,748	75,263,953
Minnesota	493	1,340	142	21,559,433	375,055	0	525,136	22,459,624
Mississippi	322	1,086	99	44,048,247	8,373,840	82,251	4,250,916	56,755,254
Missouri	568	1,902	176	31,778,685	3,282,973	0	14,585,208	49,646,866
Montana	27	154	11	4,374,595	96,659	0	39,420,586	43,891,840
Nebraska	164	490	64	10,014,706	283,104	0	660,179	10,957,989
Nevada	36	91	8	1,349,667	0	0	2,209,741	3,559,408
New Hampshire	99	274	40	2,472,394	79,718	0	10,960	2,563,072
New Jersey	607	2,170	214	12,728,407	1,632,366	5	284,578	14,645,356
New Mexico	37	155	13	1,892,903	1,153	0	16,812,196	18,706,252
New York	723	2,138	155	30,045,576	5,334,499	5	1,192,979	36,573,059
North Carolina	874	2,609	257	65,805,573	2,622,401	0	17,732,509	86,160,483
North Dakota	35	92	13	2,538,973	21,589	0	1,275	2,561,837
Ohio	1,623	5,442	485	73,749,306	3,433,797	14,469,938	30,217,526	121,870,567
Oklahoma	270	838	70	23,563,664	718,224	10,238	661,337	24,953,463
Oregon	261	735	54	18,949,703	597,554	0	1,647,454	21,194,711
Pennsylvania	1,213	3,961	306	47,232,633	5,487,942	0	1,539,478	54,260,053
Puerto Rico	163	511	26	9,397,960	22,262	0	4,456	9,424,678
Rhode Island	145	378	41	2,734,284	48,475	0	40	2,782,799
South Carolina	494	1,833	167	51,850,487	1,747,320	0	741,224	54,339,031
South Dakota	72	139	13	1,911,132	1,487	0	387	1,913,006
Tennessee	633	2,132	163	103,130,070	1,549,615	1,174,570	5,328,644	111,182,899
Texas	1,193	5,705	447	128,694,945	23,413,945	118,850,176	12,973,077	283,932,143
Utah	148	494	70	69,215,983	16,236	0	7,089,515	76,321,734
Vermont	38	82	3	547,459	2,712	0	2,674	552,845
Virgin Islands	2	26	1	1,403,451	30,876	0	2,461	1,436,788
Virginia	447	1,459	102	50,856,146	872,506	0	1,184,680	52,913,332
Washington	286	896	75	24,025,989	2,367,757	0	57,224	26,450,970
West Virginia	139	690	22	18,393,929	8,665,922	1,000	296,542	27,357,393
Wisconsin	858	2,616	210	28,534,060	2,094,078	5	549,601	31,177,744
Wyoming	29	154	25	2,786,865	8,984	8,168,366	38,347	11,002,562
Total	21,951	73,311	6,437	1,562,322,113	136,315,624	234,979,709	275,131,965	2,208,749,411

Table 4-7. TRI Transfers by State, 1995 (Alphabetically Ordered).

State	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁵ Pounds	Total Transfers Pounds
Alabama	34,802,196	14,368,339	6,280,748	729,492	12,546,578	2,320	68,729,673
Alaska	1,320	10	30	0	6,030	0	7,390
American Samoa	0	0	0	0	0	0	0
Arizona	51,003,644	982,175	9,048,997	2,109,541	562,822	0	63,707,179
Arkansas	55,060,457	6,626,109	1,887,199	262,744	1,664,073	3,928	65,504,510
California	80,855,326	9,017,845	11,708,182	12,883,050	9,191,657	10,763	123,666,823
Colorado	11,460,385	3,597,064	1,139,953	680,950	298,241	250	17,176,843
Connecticut	26,363,774	2,398,717	7,021,857	1,315,127	1,548,412	2,140	38,650,027
Delaware	17,131,437	2,427,102	899,151	3,212,904	94,065	0	23,764,659
District of Columbia	13,250	0	0	580	27,000	0	40,830
Florida	13,274,491	1,771,722	2,946,893	6,099,311	2,606,350	14,055	26,712,822
Georgia	33,320,605	7,982,367	3,880,967	2,038,831	3,532,744	1,755	50,757,269
Guam	0	0	0	15,000	0	0	15,000
Hawaii	113,527	5	8,604	0	163,769	0	285,905
Idaho	544,954	56,571	74,190	496,515	17,517	0	1,189,747
Illinois	103,687,255	30,932,803	13,187,222	12,792,226	15,783,290	3,214	176,386,010
Indiana	211,594,993	11,475,570	9,691,307	2,310,576	25,485,924	2,605	260,560,975
Iowa	37,052,579	4,375,651	2,371,689	8,467,036	1,971,659	0	54,238,614
Kansas	41,046,002	2,433,777	2,637,049	646,862	6,065,953	250	52,829,893
Kentucky	49,671,058	7,991,087	9,679,176	1,610,886	2,804,841	87,150	71,844,198
Louisiana	52,716,144	12,836,007	9,840,800	44,015	2,287,543	0	77,724,509
Maine	2,686,609	478,882	376,017	164,308	1,334,986	0	5,040,802
Maryland	10,983,751	1,551,273	2,173,159	3,088,263	4,832,591	0	22,629,037
Massachusetts	26,684,031	6,079,182	5,605,727	6,112,395	1,261,503	1,005	45,743,843
Michigan	112,624,083	66,466,971	20,167,166	11,244,415	29,418,954	1,000	239,922,589
Minnesota	21,179,660	2,569,785	876,267	7,691,857	1,426,322	300	33,744,191
Mississippi	32,918,871	3,361,417	1,959,295	767,536	1,801,727	1,852,705	42,661,551
Missouri	57,354,293	25,388,101	9,012,053	7,018,899	3,763,234	6,800	102,543,380
Montana	139,551	20,852	34,269	992	38,306	0	233,970
Nebraska	31,002,181	644,319	332,644	380,366	3,742,551	0	36,102,061
Nevada	2,016,251	6,736	2,919	7,537	57,099	0	2,090,542
New Hampshire	10,205,010	387,691	377,326	127,841	79,647	0	11,177,515
New Jersey	47,204,077	31,003,038	8,022,019	22,531,441	1,649,366	6,696	110,416,637
New Mexico	877,976	304,736	70,387	322,601	76,940	0	1,652,640
New York	74,663,319	10,783,379	5,892,797	7,576,893	4,739,214	720	103,656,322
North Carolina	96,766,275	10,824,835	12,363,268	3,137,648	3,694,773	12,649	126,799,448
North Dakota	1,134,677	23,517	20,066	639,553	23,796	0	1,841,609
Ohio	218,318,041	38,110,541	17,335,393	16,019,258	28,925,166	160,395	318,868,794
Oklahoma	20,347,336	3,016,680	907,811	155,133	3,502,678	250	27,929,888
Oregon	21,298,486	1,067,693	4,564,370	9,656,048	1,328,699	23,842	37,939,138
Pennsylvania	139,094,454	16,927,716	19,230,368	8,074,292	57,577,916	172,048	241,076,794
Puerto Rico	11,728,018	10,162,069	5,905,827	2,607,497	411,369	0	30,814,780
Rhode Island	14,159,508	874,836	515,617	439,410	451,381	250	16,441,002
South Carolina	101,510,186	10,500,648	5,764,675	3,885,743	3,499,310	0	125,160,562
South Dakota	682,774	158,806	116,964	444,246	90,911	0	1,493,701
Tennessee	58,195,383	5,961,992	5,695,820	4,746,374	8,230,485	34,804	82,864,858
Texas	133,162,715	106,463,123	49,449,843	41,325,733	12,871,575	29,166	343,302,155
Utah	5,856,703	97,386	584,532	506,295	500,982	0	7,545,898
Vermont	1,715,551	19,461	292,141	3,789	28,396	0	2,059,338
Virgin Islands	122,698	51,700	192,129	0	5	0	366,532
Virginia	34,741,028	7,732,970	2,286,989	16,429,787	2,105,457	0	63,296,231
Washington	14,176,731	671,708	647,512	2,560,092	1,618,149	0	19,674,192
West Virginia	35,542,767	11,179,882	4,176,772	2,013,907	3,613,503	0	56,526,831
Wisconsin	54,857,751	19,863,268	10,319,023	4,440,697	9,859,043	0	99,339,782
Wyoming	67,247	1,612	1,684	24	7,895	0	78,462
Total	2,213,731,389	512,029,726	287,576,863	239,836,516	279,222,397	2,431,060	3,534,827,951

⁵ Transfers reported without valid waste management codes.

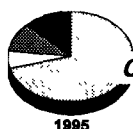


Table 4-8. TRI Releases of Newly Added Chemicals Compared to Other TRI Chemicals for Top 10 States with Largest Total Releases, 1995.

State	Newly Added Chemicals		Other TRI Chemicals		All TRI Chemicals	
	Pounds	Rank	Pounds	Rank	Pounds	Rank
Texas	58,507,596	1	225,424,547	1	283,932,143	1
Louisiana	19,341,166	2	152,918,026	2	172,259,192	2
Ohio	6,429,108	11	115,441,459	3	121,870,567	3
Tennessee	2,883,321	21	108,299,578	4	111,182,899	4
Alabama	3,616,032	18	99,149,014	5	102,765,046	5
Illinois	17,154,180	3	82,599,078	6	99,753,258	6
North Carolina	4,340,027	16	81,820,456	7	86,160,483	7
Florida	14,109,358	4	69,863,504	11	83,972,862	8
Indiana	6,909,739	10	72,868,239	10	79,777,978	9
Utah	99,522	45	76,222,212	8	76,321,734	10
Subtotal	133,390,049		1,084,606,113		1,217,996,162	
Total	237,722,570		1,971,026,841		2,208,749,411	

Texas reported more total off-site transfers than any other state, 343.3 million pounds in 1995. Other states in the top five were Ohio (318.9 million pounds), Indiana (260.6 million pounds), Pennsylvania (241.1 million pounds), and Michigan (239.9 million pounds).

According to the transfer destination code, the largest states reporting were Ohio, whose facilities transferred 218.3 million pounds for recycling (followed by Indiana with 211.6 million pounds); Texas, with 106.5 million pounds to energy recovery, 49.4 million pounds to treatment, and 41.3 million pounds to POTWs; and Pennsylvania, 57.6 million pounds disposed of off-site.

Newly Reportable Chemicals, by State

Tables 4-8 and 4-9 compare reporting for new chemicals and previously reportable TRI chemicals for the top 10 states for total releases and for total transfers.

Facilities in Texas reported the largest total releases of both new chemicals and previously reportable chemicals in 1995, and Louisiana similarly ranked second for both new and prior TRI chemicals. Illinois was third for releases of new chemicals and sixth for releases of other TRI chemicals. Only one of the top 10 states for total releases would not remain in the top 10 without the additional chemicals. Florida would drop from eighth to 11th, and Michigan would move into the top 10.

For total transfers, the only effect of the additional reporting on the ranking of the top 10 states is that Texas and Ohio—first and second for total transfers—would exchange ranks if the new chemicals were excluded.

Texas facilities accounted for a significantly higher percentage of the new-chemical reporting than for other TRI chemicals. Texas reported 24.6% of total releases of added chemicals versus 11.4% of releases of other TRI chemicals. Texas also reported 30.9% of total transfers of added chemicals versus 8.7% of transfers of other chemicals.



Table 4-9. TRI Transfers of Newly Added Chemicals Compared to Other TRI Chemicals for Top 10 States with Largest Total Transfers, 1995.

State	Newly Added Chemicals		Other TRI Chemicals		All TRI Chemicals	
	Pounds	Rank	Pounds	Rank	Pounds	Rank
Texas	47,864,893	1	295,437,262	2	343,302,155	1
Ohio	10,827,446	2	308,041,348	1	318,868,794	2
Indiana	9,793,203	3	250,767,772	3	260,560,975	3
Pennsylvania	2,923,686	14	238,153,108	4	241,076,794	4
Michigan	9,511,395	4	230,411,194	5	239,922,589	5
Illinois	2,061,380	19	174,324,630	6	176,386,010	6
North Carolina	4,441,353	10	122,358,095	8	126,799,448	7
South Carolina	1,652,559	22	123,508,003	7	125,160,562	8
California	4,907,966	8	118,758,857	9	123,666,823	9
New Jersey	2,519,064	17	107,897,573	10	110,416,637	10
Subtotal	96,502,945		1,969,657,842		2,066,160,787	
Total	155,088,391		3,379,739,560		3,534,827,951	

1995 TRI DATA BY INDUSTRY

Tables 4-10 and 4-11 present TRI releases and transfers by industry group, in the order of their Standard Industrial Classification (SIC) codes. On TRI Form Rs and Form As, facilities report their SIC codes at the four-digit level—for example, SIC code 2873, Nitrogenous Fertilizers. These specific industries are grouped into broader categories at the three-digit and two-digit SIC code levels; for example, Nitrogenous Fertilizers falls into the Agricultural Chemicals group at the three-digit level (SIC code 287) and the Chemicals and Allied Products major group (28). The two tables present the data aggregated by two-digit major groups.

Only manufacturing facilities in major SIC groups 20 through 39 are presently required by law to report to TRI. In addition, Presidential Executive Order 12856 requires all federal facilities to report to TRI.

TRI reporting forms allow facilities to report more than one SIC code to fully characterize their operations. Facilities that reported two or

more two-digit SIC codes (major groups) within the manufacturing range of 20-39 [for example, petroleum (29) and chemicals (28)] are assigned to a “multiple codes” category. Facilities reporting no SIC code or SIC codes outside the 20-39 range are assigned to a “no codes” category. Federal facilities may fall in a variety of SIC code groupings, both within and outside of the manufacturing SIC code range. In fact, many federal facilities do not conduct any manufacturing activities. In Tables 4-10 and 4-11, federal facility data are included under the SIC code they reported or under the “multiple codes” or “no codes” categories, as appropriate.

Industry groups with the largest quantities of on-site TRI releases in 1995 were chemicals (787.8 million pounds), primary metals (331.2 million pounds), and paper (233.2 million pounds). TRI facilities also submitted 5,207 forms that indicated multiple SIC code combinations. These forms contained information on 149.7 million pounds of total releases, the fourth-largest total for any industry group.

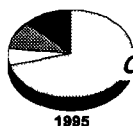


Table 4-10. TRI Releases by Industry, 1995.

SIC Code	Industry	Facilities ^⑥ Number	Total Forms Number	Form As Number	Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
20	Food	2,019	3,603	926	74,007,718	6,358,763	23,010	5,623,373	86,012,864
21	Tobacco	24	49	0	1,737,376	10,105	0	135	1,747,616
22	Textiles	356	736	51	17,489,856	268,850	0	6,903	17,765,609
23	Apparel	23	45	1	1,258,927	5	0	250	1,259,182
24	Lumber	719	1,839	362	31,211,454	66,784	0	10,970	31,289,208
25	Furniture	508	1,458	41	40,950,724	872	0	9,608	40,961,204
26	Paper	487	2,344	94	212,884,480	16,919,282	220	3,421,232	233,225,214
27	Printing	273	534	12	31,606,383	14,372	0	4,600	31,625,355
28	Chemicals	3,871	21,493	2,527	407,363,052	88,084,777	230,313,442	61,990,939	787,752,210
29	Petroleum	400	3,244	220	53,237,132	4,140,171	2,223,453	342,677	59,943,433
30	Plastics	1,821	3,791	273	111,638,343	152,088	5	428,541	112,218,977
31	Leather	97	249	20	2,941,286	113,360	0	14,843	3,069,489
32	Stone/Clay/Glass	625	1,606	213	34,633,269	117,731	102,063	1,189,405	36,042,468
33	Primary Metals	1,881	6,424	382	137,588,078	8,238,266	181,974	185,191,484	331,199,802
34	Fabricated Metals	2,918	7,765	408	81,438,563	394,468	931	751,520	82,585,482
35	Machinery	1,065	2,814	135	22,983,690	27,354	0	148,425	23,159,469
36	Electrical Equip	1,250	3,281	103	29,744,174	384,391	5	360,076	30,488,646
37	Transportation Equip.	1,270	4,482	158	109,346,838	275,007	0	395,888	110,017,733
38	Measure./Photo	306	763	41	16,212,842	647,407	0	5,766	16,866,015
39	Miscellaneous	359	792	46	11,433,809	1,505	0	14,492	11,449,806
	Multiple codes 20-39 ^⑦	1,445	5,207	377	124,419,660	9,591,944	1,808,850	13,831,264	149,651,718
	No codes 20-39 ^⑧	234	792	47	8,194,459	508,122	325,756	1,389,574	10,417,911
	Total	21,951	73,311	6,437	1,562,322,113	136,315,624	234,979,709	275,131,965	2,208,749,411

The chemical industry accounted for 17.6% of all facilities reporting to TRI, 29.3% of all forms filed, and 35.7% of all releases. Chemical manufacturing facilities reported an average of 203,501 pounds of releases, the second-highest rate among all industry groups. In 1995, this industry accounted for a quarter of all reported air emissions (26.1%), two thirds of surface water discharges (64.6%), and almost all of the reported underground injection of waste (98.0%).

The primary metals industry accounted for 8.6% of all facilities and 8.8% of all forms; however,

this industry accounted for 15.0% of releases. The primary metals industry reported an average of 176,076 pounds of releases per facility, the third highest rate among all industry groups. This industry accounted for two thirds (67.3%) of all land releases reported in 1995.

Facilities in the paper industry reported releasing an average of 478,902 pounds of TRI chemicals in 1995, highest of all industry groups. This industry accounted for just 2.2% of all facilities and 3.2% of all forms, yet

- ⑥ Facilities have been assigned to the "multiple" category according to all the SIC codes they reported. Forms and amounts in pounds have been assigned to single-category SIC codes if only one SIC code was reported for an individual chemical form from the facility.
- ⑦ Facilities/forms that reported more than one 2-digit SIC code within the range of 20 to 39 [e.g., paper (26) and chemicals (28)].
- ⑧ Facilities/forms that did not report an SIC code or reported SIC codes outside the 20-to-39 range.



1995

Table 4-11. TRI Transfers by Industry, 1995.

SIC Code	Industry	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁹ Pounds	Total Transfers Pounds
20	Food	1,105,035	191,257	982,058	22,456,381	699,107	2,448	25,436,286
21	Tobacco	100,961	1,000	6,591	364,295	269,215	0	742,062
22	Textiles	797,741	2,071,309	731,324	2,815,809	581,734	0	6,997,917
23	Apparel	3,021	106,707	60,300	255	27,842	0	198,125
24	Lumber	446,362	2,645,651	524,510	29,720	2,869,387	2,418	6,518,048
25	Furniture	6,525,939	6,928,460	796,220	122,438	107,145	250	14,480,452
26	Paper	5,286,545	8,426,010	8,968,890	41,992,057	3,017,880	500	67,691,882
27	Printing	5,575,594	3,750,132	418,855	255,642	52,645	3,866	10,056,734
28	Chemicals	241,023,104	405,325,944	160,192,339	115,287,232	29,729,498	128,629	951,686,746
29	Petroleum	22,941,629	552,946	1,066,499	5,442,553	3,185,648	1	33,189,276
30	Plastics	19,278,629	7,465,728	3,261,774	2,675,590	11,755,589	48,226	44,485,536
31	Leather	440,743	268,536	11,587	1,266,405	1,439,975	0	3,427,246
32	Stone/Clay/Glass	3,119,009	3,283,287	2,279,958	842,722	6,031,690	250	15,556,916
33	Primary Metals	767,649,333	3,792,004	37,474,772	6,550,392	169,394,346	2,092,032	986,952,879
34	Fabricated Metals	312,593,205	14,317,979	11,994,161	5,576,081	13,078,284	65,474	357,625,184
35	Machinery	62,186,201	3,104,826	1,703,448	2,772,332	3,298,363	20,055	73,085,225
36	Electrical Equip.	377,488,402	11,019,350	8,413,162	9,194,676	9,866,503	34,335	416,016,428
37	Transportation Equip	162,505,961	15,389,751	10,962,646	4,937,714	10,574,766	29,466	204,400,304
38	Measure./Photo.	14,405,710	2,330,194	3,712,513	768,943	801,905	0	22,019,265
39	Miscellaneous	18,947,120	2,891,485	591,612	846,019	2,048,394	2,140	25,326,770
	Multiple codes 20-39 ¹⁰	188,139,510	16,722,769	31,845,959	15,021,188	9,827,014	970	261,557,410
	No codes 20-39 ¹¹	3,171,635	1,444,401	1,577,685	618,072	565,467	0	7,377,260
Total		2,213,731,389	512,029,726	287,576,863	239,836,516	279,222,397	2,431,060	3,534,827,951

reported 10.6% of all releases in 1995. Nearly all (91.3%) of the paper industry's releases in 1995 were in the form of air emissions.

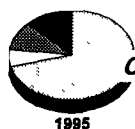
Other industries averaging more than 100,000 pounds of releases per facility were petroleum (149,859 pounds), printing (115,844 pounds), and facilities reporting multiple SIC codes (103,565 pounds). In contrast, facilities in the fabricated metals, electrical equipment, and machinery industries all reported average releases of less than 30,000 pounds per facility.

The industries with the largest quantities of transfers of TRI chemicals in 1995 were primary metals (987.0 million pounds), chemicals (951.7 million pounds), and electrical equipment (416.0 million pounds). Most of the transfers reported by the primary metals and electrical equipment industries were sent to recycling (77.8% and 90.7%, respectively). In contrast, only 25.3% of the chemical industry's transfers went to recycling; another 42.6% was sent for energy recovery. The chemical industry accounted for 79.2% of all transfers to energy recovery.

⁹ Transfers reported without valid waste management codes.

¹⁰ Facilities/forms that reported more than one 2-digit SIC code within the range of 20 to 39 [e.g., paper (26) and chemicals (28)].

¹¹ Facilities/forms that did not report an SIC code or reported SIC codes outside the 20-to-39 range.



1995

Table 4-12. TRI Releases of Newly Added Chemicals Compared to Other TRI Chemicals, by Industry, 1995.

SIC Code	Industry	Newly Added Chemicals Pounds	All TRI Chemicals Pounds	Newly Added as Percent of All TRI Chemicals Percent
20	Food	56,665,545	86,012,864	65.9
21	Tobacco	370,271	1,747,616	21.2
22	Textiles	866,025	17,765,609	4.9
23	Apparel	13,177	1,259,182	1.0
24	Lumber	133,959	31,289,208	0.4
25	Furniture	246,449	40,961,204	0.6
26	Paper	8,918,722	233,225,214	3.8
27	Printing	216,675	31,625,355	0.7
28	Chemicals	129,221,186	787,752,210	16.4
29	Petroleum	8,613,162	59,943,433	14.4
30	Plastics	4,508,861	112,218,977	4.0
31	Leather	206,619	3,069,489	6.7
32	Stone/Clay/Glass	185,003	36,042,468	0.5
33	Primary Metals	9,044,134	331,199,802	2.7
34	Fabricated Metals	2,191,940	82,585,482	2.7
35	Machinery	234,350	23,159,469	1.0
36	Electrical Equip.	2,226,575	30,488,646	7.3
37	Transportation Equip.	1,251,026	110,017,733	1.1
38	Measure./Photo.	653,957	16,866,015	3.9
39	Miscellaneous	79,466	11,449,806	0.7
Multiple codes 20-39 ¹²		11,455,141	149,651,718	7.7
No codes 20-39 ¹³		420,327	10,417,911	4.0
Total		237,722,570	2,208,749,411	10.8

Newly Reportable Chemicals, by Industry

As shown on Table 4-12, the chemical industry reported the greatest total releases of new chemicals (129.2 million pounds), which represented 16.4% of its releases of all TRI chemicals. In contrast, the new chemicals accounted for two thirds (65.9%) of the releases reported by the food industry (56.7 million pounds for the added chemicals, out of 86.0 million pounds for all TRI chemicals). Without the new chemicals, the food industry would rank 13th for total releases; with the new reporting, this industry ranks second.

Although the chemical industry ranked second among industries for total transfers, it reported the greatest amount of transfers of the new chemicals: 84.3 million pounds, or 54.4% of all transfers of added chemicals (see Table 4-13). Facilities reporting multiple SIC codes (explained in the industry section, above) transferred 22.0 million pounds of the new chemicals off-site and those in the primary metals industry 12.4 million pounds, second and third among industries, respectively. Reporting of the new chemicals did not generally affect industry rankings for total transfers in 1995, because of the relatively larger amounts of previously reportable TRI chemicals involved.

¹² Facilities/forms that reported more than one 2-digit SIC code within the range of 20-39 [e.g., paper (26) and chemicals (28)].

¹³ Facilities/forms that did not report an SIC code or reported SIC codes outside the 20-to-39 range.

**Table 4-13. TRI Transfers of Newly Added Chemicals Compared to Other TRI Chemicals, by Industry, 1995.**

SIC Code	Industry	Newly Added Chemicals Pounds	All TRI Chemicals Pounds	Newly Added As Percent of All TRI Chemicals Percent
20	Food	3,843,692	25,436,286	15.1
21	Tobacco	629,441	742,062	84.8
22	Textiles	498,858	6,997,917	7.1
23	Apparel	3,080	198,125	1.6
24	Lumber	468	6,518,048	0.0
25	Furniture	45,575	14,480,452	0.3
26	Paper	760,000	67,691,882	1.1
27	Printing	133,917	10,056,734	1.3
28	Chemicals	84,338,462	951,686,746	8.9
29	Petroleum	174,164	33,189,276	0.5
30	Plastics	3,294,311	44,485,536	7.4
31	Leather	31,413	3,427,246	0.9
32	Stone/Clay/Glass	63,138	15,556,916	0.4
33	Primary Metals	12,365,553	986,952,879	1.3
34	Fabricated Metals	3,279,362	357,625,184	0.9
35	Machinery	2,430,687	73,085,225	3.3
36	Electrical Equip.	10,759,457	416,016,428	2.6
37	Transportation Equip.	8,936,417	204,400,304	4.4
38	Measure./Photo.	826,267	22,019,265	3.8
39	Miscellaneous	399,516	25,326,770	1.6
Multiple codes 20-39 ¹⁴		21,957,850	261,557,410	8.4
No codes 20-39 ¹⁵		316,763	7,377,260	4.3
Total		155,088,391	3,534,827,951	4.4

1995 TRI Data by Federal Facilities

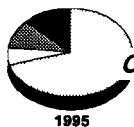
This is the second year that federal facilities have reported to TRI. In 1993, President Clinton issued Executive Order (E.O.) 12856 which mandated that federal facilities report to TRI, starting with the 1994 reporting year. The goal of E.O. 12856 is to extend community right-to-know to the federal government. In addition to filing TRI reports, Executive Order 12856 also instructs federal facilities to meet the other requirements of the Emergency Planning and Community Right-to-Know Act (EPCRA).

E.O. 12856 further stipulates that each federal agency use the 1994 TRI data submitted by their facilities as a baseline for achieving an agency-wide 50% reduction by 1999. Each federal agency is responsible for working with their respective federal facilities to reach this goal. In an effort to foster pollution prevention, E.O. 12856 encourages federal facilities to use source reduction wherever practicable to achieve their reductions.

While most federal facilities began reporting to TRI in 1994, some federal facilities submitted TRI reports earlier. For the Department of Energy (DOE), for instance, 1995 is actually the

¹⁴ Facilities/forms that reported more than one 2-digit SIC code within the range of 20-39 [e.g., paper (26) and chemicals (28)].

¹⁵ Facilities/forms that did not report an SIC code or reported SIC codes outside the 20-to-39 range.



Chapter 4 — 1995 TRI Releases and Transfers

Table 4-14. TRI Releases from Federal Facilities, 1995.

1995 Releases	Pounds
Total Releases	7,926,982
Fugitive Air	2,843,691
Point Source Air	3,192,332
Surface Water	507,036
Underground Injection	325,756
On-site Land Releases	1,058,167

Table 4-15. TRI Transfers from Federal Facilities, 1995.

1995 Transfers	Pounds
Total Transfers	6,495,255
Transfers to Recycling	4,220,029
Transfers to Energy Recovery	451,092
Transfers to Treatment	970,659
Transfers to POTWs	112,067
Transfers to Disposal	741,408
Other Off-site Transfers ¹⁶	0

third reporting year. In the spirit of community right-to-know, DOE instructed its facilities to begin filing TRI reports for the 1993 reporting year, a year prior to the date mandated under Executive Order 12856.

For the 1995 reporting year, 144 federal facilities submitted 433 TRI reports. These facilities represented 13 federal agencies. As Table 4-14

shows, the total releases from federal facilities totaled about 7.9 million pounds. Off-site transfers equaled 6.5 million pounds (see Table 4-15).

Like the rest of the reporting community, federal facilities reported that a majority of their releases were to the air. Fugitive and stack air together equaled 76.1% of the total releases. For

Table 4-16. TRI Releases from Federal Facilities, by Federal Agency, 1995.

Federal Agency	Facilities Number	Total Forms Number	Form As Number	Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
Dept. of Agriculture	3	4	0	10	0	0	474,920	474,930
Dept. of Defense	94	302	9	4,626,824	477,885	5	510,641	5,615,355
Air Force	26	85	4	2,979,038	186,295	5	486,507	3,651,845
Army	34	120	1	631,249	281,736	0	4,624	917,609
Army Corps of Engineers	2	3	0	3,110	255	0	19,000	22,365
Defense Logistics Agency	2	6	0	5,101	0	0	250	5,351
Marines	9	31	0	374,988	47	0	3	375,038
Navy	21	57	4	633,338	9,552	0	257	643,147
Dept. of Energy	18	54	0	203,097	10,782	325,751	42,261	581,891
Dept. of Health and Human Services	1	2	0	0	0	0	0	0
Dept. of Interior	3	5	2	750	4,086	0	0	4,836
Dept. of Justice	3	3	0	19,510	13,000	0	0	32,510
Dept. of Transportation	1	2	0	16,499	0	0	0	16,499
Dept. of Treasury	5	8	0	7,630	0	0	30,000	37,630
Dept. of Veterans Affairs	1	1	0	0	0	0	0	0
Environmental Protection Agency	1	2	0	11	0	0	0	11
National Aeronautics and Space Admin.	7	32	4	473,974	0	0	5	473,979
Tennessee Valley Authority	5	8	4	13,620	0	0	0	13,620
U.S. Enrichment Corporation	2	10	2	674,098	1,283	0	340	675,721
Total	144	433	21	6,036,023	507,036	325,756	1,058,167	7,926,982

¹⁶ Transfers reported without valid waste management codes.



off-site transfers the reporting patterns of federal facilities differ from the private sector. The total amount that federal facilities reported for off-site transfers were 1.4 million pounds less than the total releases reported by federal facilities. For the private sector, however, total off-site transfers were much larger than total releases.

Analyzing the 1995 data by federal agency provides another picture of reporting patterns. The Department of Defense (DOD), for instance, had a total of 94 facilities submitting 302 TRI forms. The DOD facilities reported a total 5.6 million pounds of releases and 5.7 million pounds of off-site transfers (see Tables 4-16 and 4-17). These numbers translate to 70.8% and 87.7%, respectively, of the total releases and off-site transfers for federal facilities. A primary reason for both the large number of facilities and the amount of releases and transfers relates to the unique function of DOD. Facility activities range from the

manufacture of munitions to the chemical-intensive cleaning of airplane, tank and sea-going vessel parts.

The Department of Energy (DOE) was the next largest agency. Eighteen DOE facilities submitted 54 TRI forms. Total 1995 releases for DOE were 582,000 pounds, representing 7.3% of the total for the federal government. The 103,000 pounds transferred off-site from DOE facilities equals 1.6% of the amount for the federal government. Like DOD, DOE facilities were involved in activities that utilize a number of the reportable toxic chemicals, with the principle function at DOE facilities being the research and development and cleanup of contamination from nuclear weapons production.

With only two reporting facilities and 10 TRI submissions, the U.S. Enrichment Corp. was the agency with the third greatest amount of releases and transfers. Total releases for the two

Table 4-17. TRI Transfers from Federal Facilities, by Federal Agency, 1995.

Federal Agency	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ¹⁷ Pounds	Total Transfers Pounds
Dept of Agriculture	0	0	0	0	0	0	0
Dept. of Defense	3,605,124	430,162	945,827	20,552	692,429	0	5,694,094
Air Force	497,520	125,177	147,464	1,311	293,494	0	1,064,966
Army	2,691,579	128,874	653,154	1,621	197,482	0	3,672,710
Army Corps of Engineers	0	0	0	325	0	0	325
Defense Logistics Agency	0	0	2,287	0	505	0	2,792
Marines	276,165	36,800	81,501	1,275	164,849	0	560,590
Navy	139,860	139,311	61,421	16,020	36,099	0	392,711
Dept. of Energy	93,535	0	7,020	0	2,501	0	103,056
Dept. of Health and Human Services	54,509	0	603	0	0	0	55,112
Dept. of Interior	20,979	0	4,852	0	0	0	25,831
Dept. of Justice	0	0	0	0	0	0	0
Dept. of Transportation	0	1,517	282	0	4,544	0	6,343
Dept. of Treasury	414,213	0	0	515	27,000	0	441,728
Dept. of Veterans Affairs	0	0	0	91,000	0	0	91,000
Environmental Protection Agency	0	0	0	0	0	0	0
National Aeronautics and Space Admin.	31,669	19,413	12,075	0	14,934	0	78,091
Tennessee Valley Authority	0	0	0	0	0	0	0
U.S. Enrichment Corporation	0	0	0	0	0	0	0
Total	4,220,029	451,092	970,659	112,067	741,408	0	6,495,255

¹⁷ Transfers reported without valid waste management codes.



USEC facilities was 676,000, with no reported off-site transfers. This amount was just below the total releases and transfers reported by DOE facilities. The primary role of the USEC facilities is to process uranium. Once a part of DOE, Congress in 1993 created the USEC as part of an effort to privatize sectors of government activities. While presently in transition to the private sector, the USEC facilities are continuing to report as federal facilities.

1995 TRI DATA BY CHEMICAL

This section presents chemical-specific TRI data for 1995, including information for chemicals newly added for the 1995 reporting year. It also reviews data for two groups of TRI chemicals: metals and chemicals identified as known or suspected carcinogens. Also included is information about the uses, toxicity, and environmental fate of the TRI chemicals with the largest reported releases. At the end of this chapter, Table 4-33 presents release and transfer data for all TRI chemicals for which 1995 reports were received (followed by a table of waste management data for all reported chemicals).

TRI Chemical Expansion in the 1995 Reporting Year

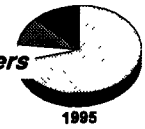
A number of the chemicals among the 286 added for the 1995 reporting year represent chemicals with high releases. Table 4-18 identifies the 20 newly added chemicals with the greatest reported releases in 1995, totalling 236.6 million pounds. Together, they account for almost all releases of the newly added chemicals (99.5%).

Releases of nitrate compounds totaled 137.7 million pounds in 1995, more than any other new TRI chemical. Almost two-thirds of the

releases of nitrate compounds (88.5 million pounds) are discharged to surface waters. Such discharges represent 98.4% of surface water discharges of the newly added chemicals and 64.9% of surface water discharges of all TRI chemicals.

In nitrogen-limited waters, nitrates from nitrate compounds have the potential to cause increased algal growth leading to eutrophication in the aquatic environment. (Nitrate-nitrogen is the form of nitrogen most available to plants.) Studies of estuarine water at several locations along the eastern coast of the US have indicated that low concentrations of dissolved nitrogen (e.g., nitrate) limit primary production of plants. Additions of nitrate to such estuarine systems stimulate primary production of plants and can produce changes in the dominant species of plants, leading to cultural eutrophication and ultimately to deterioration of water quality, including algal blooms. Toxic effects result from oxygen depletion as the algae die and decay. Toxic effects have also been related to the release of decay products or direct excretion of toxic substances from sources such as blue-green algae.

N-Hexane was the chemical with the second largest releases among the newly added chemicals. Almost all releases of n-hexane were reported as air emissions (77.3 million pounds), and they represent 86.4% of the total air emissions of the newly added TRI chemicals and 3.4% of the total air emissions of all TRI chemicals. EPA has concluded that n-hexane can reasonably be anticipated to cause neurological effects. Studies of workers have shown neurological effects such as blurred vision, abnormal color vision, loss of coordination, and numbness of the extremities. N-hexane has been shown to damage the peripheral nerve cells which are the nerve cells that run from the spinal cord to other parts of the body.



1995

Table 4-18. Top 20 TRI Chemicals with the Largest Releases, among Newly Added Chemicals, 1995.

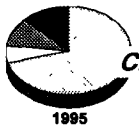
CAS Number ¹⁸	Chemical	Total Forms Number	Form As Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
—	Nitrate compounds	649	37	15,932	227,510	88,495,829	46,299,521	2,704,310	137,743,102
110-54-3	n-Hexane	676	18	23,071,340	54,262,867	46,418	5,380	10,157	77,396,162
68-12-2	N,N-Dimethylformamide	134	7	564,526	2,278,664	73,106	1,099,000	1,710	4,017,006
108-93-0	Cyclohexanol	24	5	63,513	106,655	154	3,623,000	0	3,793,322
872-50-4	N-Methyl-2-pyrrolidone	253	11	1,214,106	1,412,926	201,221	769,037	135,050	3,732,340
121-44-8	Triethylamine	143	20	471,422	1,545,650	27,685	309,512	14,010	2,368,279
7632-00-0	Sodium nitrite	289	62	79,292	143,121	1,082,902	978,500	80,798	2,364,613
—	Polycyclic aromatic compounds	138	7	80,920	603,381	4,915	0	14,164	703,380
1912-24-9	Atrazine	20	3	3,468	19,221	1,656	0	637,036	661,381
10028-15-6	Ozone	26	1	41,779	489,392	0	0	0	531,171
124-40-3	Dimethylamine	69	15	126,998	327,891	24,985	45,250	3,000	528,124
4170-30-3	Crotonaldehyde	7	0	38,569	63,010	680	391,500	0	493,759
—	Diisocyanates	996	272	158,719	226,662	1,370	0	29,032	415,783
—	Nicotine and salts	24	1	26,297	351,686	755	0	135	378,873
2699-79-8	Sulfuryl fluoride	2	0	7	355,000	0	0	0	355,007
77-73-6	Dicyclopentadiene	63	3	169,168	155,133	5,468	0	331	330,100
107-19-7	Propargyl alcohol	11	1	1,650	8,229	0	290,680	0	300,559
13194-48-4	Ethoprop	6	0	250	256	0	0	174,290	174,796
75-43-4	Dichlorofluoromethane (HCFC-21)	4	0	43,117	130,000	2	0	0	173,119
149-30-4	2-Mercaptobenzothiazole	26	7	1,782	32,916	5	97,000	260	131,963
	Subtotal	3,560	470	26,172,855	62,740,170	89,967,151	53,908,380	3,804,283	236,592,839
	Total for Chemicals Added in 1995	4,410	658	26,370,105	63,104,521	90,243,306	54,116,863	3,887,775	237,722,570
	Total for All TRI Chemicals	73,311	6,437	385,094,609	1,177,227,504	136,315,624	234,979,709	275,131,965	2,208,749,411

Ozone, also among the top 20 of the newly added chemicals, with 531,000 pounds of air releases, is the subject of recently proposed revisions to air quality standards. EPA has proposed revisions to the air quality standards for ozone due to compelling evidence that this chemical adversely affects human health, and especially the health of children, at levels lower than previously considered. EPA proposed to change this regulation to a new 8 hour standard to protect against longer exposure periods that are of concern at ozone concentration below the level of the current standard. Exposure to ambient ozone concentrations has been linked to increased hospital admissions for respiratory causes, such as asthma. Studies conducted in the northeastern US and Canada show that ozone air pollution is associated with 10-20% of all of the

summertime respiratory-related hospital admissions. Repeated exposure to ozone can make people more susceptible to respiratory infection and lung inflammation and can aggravate preexisting respiratory diseases, such as asthma.

Adults who are outdoors and are moderately active during the summer months, such as construction workers and other outdoor workers, are also among those most at risk. These individuals, as well as those with respiratory illnesses, such as asthma, can experience a reduction in lung function and increased respiratory symptoms, such as chest pain and cough, when exposed to relatively low ozone levels during periods of moderate exertion. Long-term exposures to ozone can cause repeated inflammation of the lung, impairment

¹⁸ Compound categories do not have CAS numbers (—).



of lung defense mechanisms, and irreversible changes in lung structure, which could lead to chronic respiratory illnesses such as emphysema, chronic bronchitis, and or premature aging of the lungs. Also, children are most at risk from exposure to ozone because they are active outside, playing and exercising during the summertime when ozone levels are highest.

TRI information collected on releases of ozone to the environment involve industrial releases of the chemical, not non-manufacturing releases from, for example, automobiles which comprise a greater source of ozone to the environment. However, the information provided through EPCRA section 313 adds to the total picture of ozone in the environment.

Newly Added Chemicals Affecting Children's Health

The chemicals added to the TRI beginning with the 1995 reporting year include chemicals that may have adverse effects for children, such as chemicals that have been linked to developmental toxicity, as well as known respiratory effects. The quality of our children's health and the threat posed by environmental hazards has clearly become of great concern to the public recently. EPA has outlined several reasons why children are particularly vulnerable to environmental health risks. These vulnerabilities include: children's systems are still developing so they eat proportionally more food than adults; children are least able to protect themselves; and their behavior exposes them to different environmental hazards. As a consequence, this group represents a greater concern than the general public to toxic chemical exposure.

Nitrate compounds, the chemical category added to the TRI list for the 1995 reporting year with the greatest releases, captures nitrates which have been linked to infantile methemoglobinemia, or 'blue-baby' syndrome. This

condition, which occurs in human infants exposed to aqueous solutions of nitrate ion and which can cause damage to developing organs and death, is caused by the reduced capacity for the blood to carry oxygen. Infants 0-3 months of age are the most sensitive population to nitrate-induced methemoglobinemia. This is primarily due to their higher stomach pH which favors the growth of nitrate-reducing bacteria, the immaturity of their metabolic enzyme systems, and reduced capacity of their erythrocytes to reduce methemoglobin to hemoglobin. Information concerning this chemical is important to a family's right-to-know.

Other chemicals such as bromoxynil, oxydiazon, and triforine, all added in the chemical expansion for the 1995 reporting year, have been shown to cause structural abnormalities, non-viable births, and decreased birth weights in animal studies. Almost one third of the newly added chemicals are developmental toxicants. The total releases of these chemicals was 10.6 million pounds in 1995, or 4.5% of the total releases for all of the newly added chemicals.

EPA has also noted that there are special concerns relating to children's exposure to ozone. Children are most at risk from exposure to ozone because: children breathe more air per pound of body weight than adults; children are more susceptible than adults to environmental threats because of their developing respiratory systems; and, children are outside most during the summer, when the ozone levels are the highest. Also, because asthma is growing concern in children, additional factors must be taken into account in understanding ozone exposure of asthmatic children. Concern has grown recently because children are 25% of the population and comprise 40% of the asthma cases; the asthma death rate is three times as great as 20 years ago; African-Americans die from asthma at a rate six times that of Caucasians; and, ozone aggravates asthma, increasing



use of medication, more medical treatment, and more visits to emergency clinics.

Chemicals Used as Pesticides

About half of the newly added chemicals are pesticides; the total releases for these chemicals were 2.0 million pounds and transfers were 3.2 million pounds. The TRI information, in concert with efforts made by EPA through the Food Quality Protection Act, can provide the public with a more complete picture of toxic chemicals used as pesticides. Toxic chemicals used as pesticides have a wide range of effects associated with exposure at certain levels.

Although TRI reporting reflects manufacturing releases of chemicals used as pesticides and not direct pesticide use, TRI information is still valuable in presenting a fuller picture of pesticides in the environment.

Chemicals Added Because of Carcinogenicity

Almost 15% of the newly added chemicals were added to the TRI list based on EPA's evaluation of their carcinogenicity. Total releases of these chemicals were 1.9 million pounds. This is a different set from those newly added chemicals that are OSHA-designated carcinogens, whose total releases were 5.4 million pounds (see Table 4-22 and discussion of OSHA carcinogens later in this chapter). Cancer-causing agents in the environment are an obvious source of concern to the public. The reporting of information about these chemicals adds significantly to community right-to-know.

Newly reportable chemicals are specially marked in Table 4-33, which supplies release and transfer data for all TRI chemicals.

Chemical-Specific Data Tables for All TRI Chemicals

Table 4-19 lists the top 20 chemicals—among all TRI chemicals—with the largest total

releases. Facilities reported releasing more than 100 million pounds of four chemicals: methanol, 245.0 million pounds; ammonia, 195.1 million pounds; toluene, 145.9 million pounds, and nitrate compounds, 137.7 million pounds. For the first three of these chemicals, the primary release medium was air. As mentioned above, nitrate compounds, newly reportable in 1995, were the chemical reported as discharged to water (88.5 million pounds) and to underground wells (46.3 million pounds) in greater amounts than any other TRI chemical. Zinc compounds led the TRI list for reported releases to land (81.5 million pounds).

When only releases to air, water, and land are considered (excluding underground injection), the top 18 chemicals remain the same, although a few change rank by one position.

Use, Toxicity, and Environmental Fate Information

TRI chemicals exhibit a variety of adverse health and environmental effects. Information on use, toxicity, and environmental fate is provided here for the top five chemicals with the largest releases in 1995 (see Table 4-19).

Methanol

Uses. Methanol is used as a solvent, as a raw material in the synthesis of organic chemicals, as a fuel, as a de-icing agent, and to denature ethanol.

Toxicity. Methanol is readily absorbed from the gastrointestinal tract and the respiratory tract, and is toxic to humans in moderate to high doses. In the body, methanol is converted into formaldehyde and formic acid. Observed toxic effects at high dose levels include central nervous system damage and blindness. Inhalation of methanol at relatively high doses affects the liver and blood in animals.

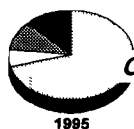


Table 4-19. Top 20 TRI Chemicals with the Largest Total Releases, 1995.

CAS Number ¹⁹	Chemical	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
67-56-1	Methanol	30,910,899	179,265,280	8,378,058	24,812,653	1,645,466	245,012,356
7664-41-7	Ammonia	36,740,310	120,018,952	9,994,144	23,205,946	5,137,094	195,096,446
108-88-3	Toluene	52,017,387	93,446,998	53,287	303,491	66,306	145,887,469
—	Nitrate compounds	15,932	227,510	88,495,829	46,299,521	2,704,310	137,743,102
1330-20-7	Xylene (mixed isomers)	22,439,619	73,072,799	33,806	93,396	100,323	95,739,943
—	Zinc compounds	1,851,792	2,912,569	1,129,803	212,844	81,541,683	87,648,691
7647-01-0	Hydrochloric acid ²⁰	2,571,395	75,344,797	7,286	7,382,957	24,097	85,330,532
75-15-0	Carbon disulfide	3,460,693	80,664,956	39,864	3,985	265	84,169,763
110-54-3	n-Hexane	23,071,340	54,262,867	46,418	5,380	10,157	77,396,162
78-93-3	Methyl ethyl ketone	24,861,372	44,485,984	63,120	556,607	87,856	70,054,939
7782-50-5	Chlorine	1,050,520	64,688,063	428,976	74,124	14,213	66,255,896
7664-38-2	Phosphoric acid	440,282	823,010	20,402,696	7,560	35,884,482	57,558,030
75-09-2	Dichloromethane	22,188,420	33,930,771	28,370	1,140,335	2,064	57,289,960
—	Manganese compounds	703,340	2,121,478	822,341	3,590	41,326,472	44,977,221
—	Glycol ethers	9,158,796	34,386,882	176,051	132,064	25,145	43,878,938
—	Copper compounds	1,496,420	1,183,482	79,792	264,102	40,604,659	43,628,455
100-42-5	Styrene	12,115,785	29,359,298	17,570	209,945	171,010	41,873,608
74-85-1	Ethylene	14,291,229	19,827,406	27,324	0	0	34,145,959
75-05-8	Acetonitrile	698,612	323,270	7,474	27,837,181	12	28,866,549
71-36-3	n-Butyl alcohol	5,489,259	19,876,273	115,353	2,263,357	4,631	27,748,873
	Subtotal	265,573,402	930,222,645	130,347,562	134,809,038	209,350,245	1,670,302,892
	Total for All TRI Chemicals	385,094,609	1,177,227,504	136,315,624	234,979,709	275,131,965	2,208,749,411

Methanol is expected to have low toxicity to aquatic organisms and is not likely to persist in water or to bioaccumulate in aquatic life.

Environmental Fate. Methanol reacts in air to produce formaldehyde, which contributes to formation of air pollutants. In the atmosphere, it can react with other chemicals or be washed out by rain. Methanol is readily degraded by micro-organisms in soils and surface waters.

Ammonia

Uses. Ammonia is used in the manufacture of nitrogen compounds, including chemicals used as fertilizers or in making nylon and plastics. It

is also used in refrigeration, paper and pulp production, explosives, cleaners, and metal-treating operations.

Toxicity. Anhydrous ammonia is a corrosive and severely irritating gas with a pungent odor; it is irritating to the skin, eyes, nose, throat, and upper respiratory system.

Aqueous ammonia is moderately toxic to aquatic organisms. Because it is a source of nitrogen, an essential element for aquatic plant growth, ammonia may contribute to eutrophication of standing or slow-moving surface water, particularly in nitrogen-limited waters, such as the Chesapeake Bay.

¹⁹ Compound categories do not have CAS numbers (—).

²⁰ Effective with the 1995 reporting year, the listing for hydrochloric acid was modified to include only acid aerosol forms. Reported releases of hydrochloric acid to water, land, and underground injection are unlikely to be acid aerosol forms and therefore probably represent misreporting. The definition change is described in Chapter 5.



Environmental Fate. Ammonia combines with sulfate ions in the atmosphere and is washed out by rainfall, resulting in rapid return of ammonia to the soil and surface waters. Ammonia is a central compound in the environmental cycling of nitrogen. Ammonia in lakes, rivers, and streams is converted to nitrate.

Toluene

Uses. Toluene is a flammable liquid used in the manufacture of organic chemicals, as a solvent for paint, gums, and resins, and as an additive for gasoline.

Toxicity. Inhalation or ingestion of toluene can cause headaches, confusion, weakness, and memory loss. Toluene may also affect the way the kidneys and liver function. Some studies have shown that unborn animals were harmed when high levels of toluene were inhaled by their mothers, although the same effects were not seen when the mothers were fed large quantities of toluene.

Reactions of toluene in the atmosphere contribute to the formation of ozone in the lower atmosphere. Ozone can affect the respiratory system, especially in sensitive individuals such as asthma or allergy sufferers.

Environmental Fate. As a volatile organic chemical, toluene will react with other atmospheric components in the lower atmosphere, contributing to the formation of ozone and other air pollutants. The majority of releases to land and water will evaporate. Toluene may also be degraded by microorganisms.

Nitrate Compounds

Uses. There are many compounds covered by the nitrate compounds category and they have many uses. The most significant use is as fertilizers, either straight or blended to make

complex fertilizers. Some compounds are also used as oxidizing agents and as constituents in some explosives and pyrotechnics. Nitrate compounds are also used as refining agents for removing air bubbles from melts in the glass and enamel industry and in metallurgy as heat-transfer baths for quench hardening and tempering of steel, light alloys, and copper alloys.

Toxicity. Nitrate compounds that are soluble in water release nitrate ion which can cause both human health and environmental effects. Human infants exposed to aqueous solutions of nitrate ion can develop a condition in which the blood's ability to carry oxygen is reduced. This reduced supply of oxygen can lead to damaged organs and death. Because it is a source of nitrogen, an essential element for aquatic plant growth, nitrate ion may contribute to eutrophication of standing or slow-moving surface water, particularly in nitrogen-limited waters, such as the Chesapeake Bay.

Environmental Fate. Nitrate-nitrogen is the form of nitrogen most available to plants. In the environment, nitrate ion is taken up by plants and becomes part of the natural nitrogen cycle. Excess nitrate can stimulate primary production of plants and can produce changes in the dominant species of plants, leading to cultural eutrophication and ultimately to deterioration of water quality.

Xylenes

Uses. Xylenes are used in the manufacture of organic chemicals as a raw material and as a solvent. They are also used as solvents for paints, coatings, adhesives, and rubbers.

Toxicity. Xylenes are rapidly absorbed into the body after inhalation, ingestion, or skin contact. Short-term exposure to high levels of xylenes can cause irritation of the skin, eyes, nose, and throat, difficulty in breathing, impaired lung

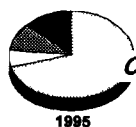


Table 4-20. TRI Releases of Metals and Metal Compounds, 1995.

Chemical	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
Antimony and antimony compounds	44,017	88,296	35,938	11,332	1,186,117	1,365,700
Arsenic and arsenic compounds	71,451	60,222	5,235	55,000	1,352,453	1,544,361
Barium and barium compounds	95,299	151,459	59,896	0	534,373	841,027
Beryllium and beryllium compounds	3	1,192	28	0	45,189	46,412
Cadmium and cadmium compounds	10,340	42,712	1,108	109	69,057	123,326
Chromium and chromium compounds	446,601	751,383	152,615	57,780	21,652,821	23,061,200
Cobalt and cobalt compounds	17,628	43,006	87,683	22,657	228,751	399,725
Copper and copper compounds	1,948,194	1,908,210	121,903	293,889	42,284,834	46,557,030
Lead and lead compounds	735,144	1,297,578	64,753	912	14,683,521	16,781,908
Manganese and manganese compounds	1,162,724	2,348,450	938,857	3,607	49,656,794	54,110,432
Mercury and mercury compounds	10,698	5,613	328	6	1,016	17,661
Nickel and nickel compounds	253,843	336,794	76,732	113,506	2,662,954	3,443,829
Selenium and selenium compounds	2,656	69,997	2,276	3,640	110,273	188,842
Silver and silver compounds	8,500	16,702	6,445	380	30,675	62,702
Thallium and thallium compounds	5	250	0	0	755	1,010
Zinc and zinc compounds ²¹	2,609,078	4,164,447	1,183,067	212,844	87,944,424	96,113,860
Total	7,416,181	11,286,311	2,736,864	775,662	222,444,007	244,659,025

function, impaired memory, and possible changes in the liver and kidneys. Both short- and long-term exposure to high concentrations can cause headaches, dizziness, confusion, and lack of muscle coordination. Reactions of xylenes in the atmosphere contribute to the formation of ozone in the lower atmosphere. Ozone can affect the respiratory system, especially in sensitive individuals such as asthma or allergy sufferers.

Environmental Fate. The majority of releases to land and water will quickly evaporate, although some degradation by microorganisms will occur. Xylenes are moderately mobile in soils and may leach into groundwater, where they may persist for several years. As volatile organic chemicals (VOCs), xylenes will react with other atmospheric components in the lower atmosphere, contributing to the formation of ozone and other air pollutants.

²¹ Only fume and dust forms of zinc metal are reportable.



Table 4-21. TRI Transfers of Metals and Metal Compounds, 1995.

Chemical	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ^② Pounds	Total Transfers Pounds
Antimony and antimony compounds	8,857,241	50,871	889,683	113,130	3,127,826	10,835	13,049,586
Arsenic and arsenic compounds	613,700	3,402	1,341,873	316	1,388,214	0	3,347,505
Barium and barium compounds	1,856,005	91,968	1,546,043	385,227	4,788,921	250	8,668,414
Beryllium and beryllium compounds	33,623	0	1,413	1	8,543	0	43,580
Cadmium and cadmium compounds	1,793,320	2,866	197,957	4,194	1,704,559	46,535	3,749,431
Chromium and chromium compounds	123,811,523	179,718	5,522,176	358,500	20,699,615	32,955	150,604,487
Cobalt and cobalt compounds	11,303,443	1,864	104,752	24,903	452,506	0	11,887,468
Copper and copper compounds	697,197,036	77,748	3,164,652	327,461	20,901,980	52,146	721,721,023
Lead and lead compounds	351,135,515	68,930	7,520,913	58,334	19,016,274	1,258,520	379,058,486
Manganese and manganese compounds	125,706,803	196,886	5,270,818	401,124	33,392,707	521,070	165,489,408
Mercury and mercury compounds	58,206	505	16,739	24	208,075	871	284,420
Nickel and nickel compounds	100,382,663	7,189	2,016,960	179,866	8,556,131	1,271	111,144,080
Selenium and selenium compounds	162,882	19	50,593	2,564	73,970	0	290,028
Silver and silver compounds	2,275,830	1	28,781	2,201	10,889	0	2,317,702
Thallium and thallium compounds	3,852	0	190	5	0	0	4,047
Zinc and zinc compounds ^③	306,724,105	427,522	17,067,410	580,498	101,036,071	3,570	425,839,176
Total	1,731,915,747	1,109,489	44,740,953	2,438,348	215,366,281	1,928,023	1,997,498,841

Metals and Metal Compounds

Both metals and their metal compounds are listed on TRI. Releases and transfers reported in 1995 for these chemicals appear on Tables 4-20 and 4-21, respectively. Under EPCRA section 313, facilities that manufacture, process, or otherwise use metal compounds report releases and transfers of only the metal portion of the metal compound. For example, a facility that releases a copper compound, such as copper

sulfate, would report as a release only the weight of the copper, not the weight of the entire copper compound. This is done to capture information on the targeted portion of each member of the category, so that information on the listed, or toxic, portion of the compound is captured.

Metals (including the metal portion of metal compounds) differ from other TRI chemicals because they do not degrade and are not destroyed. Other TRI-listed chemicals can be

^② Transfers reported without valid waste management codes.

^③ Only fume and dust forms of zinc metal are reportable.



form. For example, many facilities convert hexavalent chromium (a known carcinogen) to the less toxic trivalent form before releasing or transferring it to off-site locations. Other metal waste may be treated before disposal so that the metal will be less likely to be transported through soils. Although such treatment may limit the availability of the metal to the environment, it does not destroy the metal.

Table 4-20 shows the releases of TRI metals and metal compounds in 1995, totalling 244.7 million pounds. Note that a few other metals [for example, aluminum (fume or dust) and certain metal-containing pesticides] are also reportable to TRI, but are not included in this table because they do not have associated compound categories. The large majority (90.9%) of releases of metals and metal compounds are land releases.

Table 4-21 shows the transfers of TRI metals and metal compounds in 1995, totaling nearly 2.0 billion pounds. This represents 56.5% of all transfers reported to TRI in 1995. Transfers of metals and metal compounds to recycling totaled 1.73 billion pounds, which represents 86.7% of all transfers of metals and metal compounds and nearly 77.2% of total releases and transfers of metals and metal compounds.

The metal recycling shown in Table 4-21 consists only of off-site recycling. Amounts of individual metals recaptured from waste by on-site recycling activities can be found in the table of waste management data that concludes this chapter.

Some facilities reported transfers of metals in waste off-site for treatment by POTWs. Treatment processes employed at POTWs may remove the metal from a waste stream or convert the metal into a less toxic form, but they do not destroy the metal. For example, public sewage treatment plants will remove some fraction of the metals during treatment of the waste stream when removing solid materials.

The amounts removed are then generally sent to a landfill for disposal. The metal waste that is not removed remains in the wastewater and will pass through the treatment plant and into the aquatic environment.

OSHA Carcinogens

Some chemicals are listed on the TRI because they are either known human carcinogens or suspect carcinogens (see Box 4-4). Known human carcinogens are those that have been shown to cause cancer in humans. Suspect carcinogens are those chemicals that have been shown to cause cancer in animals. TRI thresholds for reporting known and suspect carcinogens in mixtures are lower for these substances. Table 4-22 shows releases for these chemicals.

Clarification of the Basis for Carcinogen Listings on the EPCRA Section 313 List of Toxic Chemicals

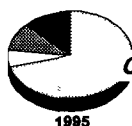
Under section 313, a chemical does not have to be counted towards threshold and release calculations if it is present in a mixture below a certain concentration. This is known as the section 313 "*de minimis*" concentration in mixture. When the section 313 rule was developed, EPA adopted the *de minimis* percentages from the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standards (29 CFR 1910.1200), because much of the information that industry would have relating to chemicals in mixtures would most likely be from the material safety data sheet (MSDS) on that mixture. The OSHA *de minimis* limitation is 0.1% if the chemical is a known or suspect carcinogen by virtue of appearing in one of three sources:

1. National Toxicology Program (NTP), "Annual Report on Carcinogens" (Latest Edition);



Chemical	IARC ²⁴	NTP ²⁵	OSHA ²⁶
Acetaldehyde	2B	P	—
Acetamide	2B	—	—
2-Acetylaminofluorene	—	P	Z
Acrylamide	2A	P	—
Acrylonitrile	2A	P	Z
2-Aminoanthraquinone	—	P	—
4-Aminoazobenzene	2B	—	—
4-Aminobiphenyl	1	K	Z
1-Amino-2-methylantraquinone	—	P	—
Amitrole	2B	P	—
o-Anisidine	2B	—	—
o-Anisidine hydrochloride	—	P	—
Arsenic and inorganic arsenic compounds	1	K ²⁷	Z
Asbestos (friable)	1	K	Z
Atrazine	2B	—	—
Benzene	1	K	Z
Benzidine	1	K	Z
Benzoic trichloride	2B	P	—
Beryllium and beryllium compounds	1	P ²⁷	—
Bis(chloromethyl)ether	1	K	Z
1,3-Butadiene	2A	P	—
C.I. Acid Red 114	2B	—	—
C.I. Direct Black 38	2A	P	—
C.I. Direct Blue 6	2A	P	—
C.I. Direct Brown 95	2A	—	—
C.I. Food Red 5	2B	—	—
C.I. Solvent Yellow 34 (Auramine)	2B	—	—
Cadmium and cadmium compounds	1	P ²⁷	—
Carbon tetrachloride	2B	P	—
Chlordane	2B	—	—
Chlorendic acid	2B	P	—
p-Chloroaniline	2B	—	—
Chloroform	2B	P	—
Chloromethyl methyl ether	1	K	Z
3-Chloro-2-methyl-1-propene	—	P	—
Chlorophenols	2B	—	—
p-Chloro-o-toluidine	2B	—	—
Chromium (VI) compounds	1	K	—
Cobalt and cobalt compounds	2B	—	—
Creosote	2A	—	—
p-Cresidine	2B	P	—
Cupferron	—	P	—
2,4-D ²⁸	2B	—	—
2,4-D butoxyethyl ester ²⁸	2B	—	—
2,4-D butyl ester ²⁸	2B	—	—
2,4-D chlorocrotyl ester ²⁸	2B	—	—
2,4-D 2-ethylhexyl ester ²⁸	2B	—	—
2,4-D 2-ethyl-4-methylpentyl ester ²⁸	2B	—	—
2,4-Diaminoanisoie	2B	—	—
2,4-Diaminoanisoie sulfate	—	P	—
4,4'-Diaminodiphenyl ether	2B	—	—
2,4-Diaminotoluene	2B	P	—
Diaminotoluene (mixed isomers)	2B	P	—
1,2-Dibromo-3-chloropropane	2B	P	Z
1,2-Dibromoethane	2A	P	—
1,4-Dichlorobenzene	2B	P	—
Dichlorobenzene (mixed isomers)	2B	P	—
3,3'-Dichlorobenzidine	2B	P	Z
3,3'-Dichlorobenzidine dihydrochloride	2B	P	—
3,3'-Dichlorobenzidine sulfate	2B	P	—
1,2-Dichloroethane	2B	P	—
Dichloromethane	2B	P	—
trans-1,3-Dichloropropene	2B	—	—
1,3-Dichloropropylene	2B	P	—

Box 4-4. Basis of OSHA Carcinogen Listing for Individual Chemicals.²⁹



Chemical	IARC ²⁴	NTP ²⁵	OSHA ²⁶
Dichlorvos	2B	—	—
Diepoxybutane	2B	P	—
Di-(2-ethylhexyl)phthalate	2B	P	—
Diethyl sulfate	2A	P	—
Diglycidyl resorcinol ether	2B	p	—
Dihydrosafrole	2B	—	—
3,3'-Dimethoxybenzidine	2B	P	—
3,3'-Dimethoxybenzidine dihydrochloride	2B	P	—
3,3'-Dimethoxybenzidine hydrochloride	2B	P	—
4-Dimethylaminoazobenzene	2B	P	Z
3,3'-Dimethylbenzidine	2B	P	—
3,3'-Dimethylbenzidine dihydrochloride	2B	P	—
3,3'-Dimethylbenzidine dihydrofluoride	2B	P	—
Dimethylcarbaryl chloride	2A	P	—
N,N-Dimethylformamide	2B	—	—
1,1-Dimethylhydrazine	2B	P	—
Dimethyl sulfate	2A	P	—
1,4-Dioxane	2B	P	—
1,2-Diphenylhydrazine	—	P	—
2,4-D isopropyl ester ²³	2B	—	—
2,4-DP ²³	2B	—	—
2,4-D propylene glycol butyl ether ester ²³	2B	—	—
2,4-D sodium salt ²³	2B	—	—
Epichlorohydrin	2A	P	—
Ethyl acrylate	2B	P	—
Ethyleneimine	—	—	Z
Ethylene oxide	1	P	Z
Ethylene thiourea	2B	P	—
Formaldehyde	2A	P	Z
Heptachlor	2B	—	—
Hexachlorobenzene	2B	P	—
Hexamethylphosphoramide	2B	P	—
Hydrazine	2B	P	—
Hydrazine sulfate	—	P	—
Lead and inorganic lead compounds	2B	—	Z
Lindane	2B	P	—
Mecoprop ²³	2B	—	—
Methoxone ²³	2B	—	—
Methoxone sodium salt ²³	2B	—	—
4,4'-Methylenebis (2-chloroaniline)	2A	P	—
4,4'-Methylenebis (N,N-dimethyl) benzeneamine	2B	P	—
4,4'-Methylenedianiline	2B	P	Z
Michler's ketone	—	P	—
Mustard gas	1	K	—
alpha-Naphthylamine	—	—	Z
beta-Naphthylamine	1	K	Z
Nickel	2B	P	—
Nickel compounds	1	P ²⁷	—
Nitrilotriacetic acid	—	P	—
4-Nitrobiphenyl	—	—	Z
Nitrofen	2B	P	—
Nitrogen mustard	2A	—	—
2-Nitropropane	2B	P	—
N-Nitrosodi-n-butylamine	2B	P	—
N-Nitrosodiethylamine	2A	P	—
N-Nitrosodimethylamine	2A	P	Z
N-Nitrosodi-n-propylamine	2B	P	—
N-Nitroso-N-ethylurea	2A	P	—
N-Nitroso-N-methylurea	2A	P	—
N-Nitrosomethylvinylamine	2B	P	—
N-Nitrosomorpholine	2B	P	—
N-Nitrosomnicotine	2B	P	—
N-Nitrosopiperidine	2B	P	—
Pentachlorophenol	2B	—	—

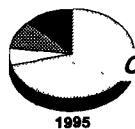
Box 4-4. Basis of OSHA Carcinogen Listing for Individual Chemicals, Cont.²⁹



Chemical	IARC ²⁴	NTP ²⁵	OSHA ²⁶
Phenytoin	2B	P	—
Polybrominated biphenyls (PBBs)	2B	P	—
Polychlorinated biphenyls (PCBs)	2A	P	—
Polycyclic aromatic compounds (PACs):			
Benz(a)anthracene	2A	P	—
Benzo(b)fluoranthene	2B	P	—
Benzo(j)fluoranthene	2B	P	—
Benzo(k)fluoranthene	2B	—	—
Benzo(rst)pentaphene	2B	—	—
Benzo(a)pyrene	2A	P	—
Dibenz(a,h)acridine	2A	P	—
Dibenz(a,j)acridine	2B	P	—
Dibenzo(a,h)anthracene	2B	P	—
7H-Dibenzo(c,g)carbazole	2B	P	—
Dibenzo(a,e)pyrene	2B	P	—
Dibenzo(a,h)pyrene	2B	P	—
Dibenzo(a,l)pyrene	2B	P	—
7,12-Dimethylbenz(a)anthracene	2B	—	—
Indeno[1,2,3-cd]pyrene	2B	P	—
5-Methylchrysene	2B	P	—
1-Nitropyrene	2B	—	—
Potassium bromate	2B	—	—
Propane sultone	2B	P	—
beta-Propiolactone	2B	P	Z
Propyleneimine	2B	P	—
Propylene oxide	2B	P	—
Saccharin (manufacturing)	2B	P	—
Saffrole	2B	P	—
Sodium o-phenylphenoxide	2B	—	—
Styrene	2B	—	—
Styrene oxide	2A	—	—
Tetrachloroethylene	2B	P	—
Thioacetamide	2B	P	—
4,4'-Thiodianiline	2B	P	—
Thiourea	2B	P	—
Toluene-2,4-diisocyanate	2B	P	—
Toluene-2,6-diisocyanate	2B	P	—
Toluene diisocyanate (mixed isomers)	2B	P	—
o-Toluidine	2B	P	—
o-Toluidine hydrochloride	—	P	—
Toxaphene	2B	P	—
Trichloroethylene	2A	—	—
2,4,6-Trichlorophenol	2B	P	—
1,2,3-Trichloropropane	2A	—	—
Tris(2,3-dibromopropyl)phosphate	2A	P	—
Trypan blue	2B	—	—
Urethane	2B	P	—
Vinyl acetate	2B	—	—
Vinyl bromide	2A	—	—
Vinyl chloride	1	K	Z
2,6-Xylidine	2B	—	—

Box 4-4. Basis of OSHA Carcinogen Listing for Individual Chemicals, Cont.²⁷

- ²⁴ 1: The chemical is carcinogenic to humans; 2A: The chemical is probably carcinogenic to humans; 2B: The chemical is possibly carcinogenic to humans.
- ²⁵ K: The chemical is known to be carcinogenic; P: The chemical may reasonably be anticipated to be carcinogenic.
- ²⁶ Z: The chemical appears at 29 CFR Part 1910 Subpart Z.
- ²⁷ Certain compounds.
- ²⁸ Chlorophenoxy herbicides (IARC 2B).
- ²⁹ The list of TRI chemicals meeting the OSHA carcinogen standard and, therefore, reported when in a mixture at a concentration level below the *de minimus* level of 0.1%, has been updated, and this list reflects the update.



Chapter 4 — 1995 TRI Releases and Transfers

Table 4-22. TRI Releases to Air, Water, and Land of OSHA Carcinogens, 1995 (Alphabetically Ordered). ^(a)

CAS Number ^(b)	Chemical	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
75-07-0	Acetaldehyde	1,609,764	11,813,290	225,846	605,885	155,355	14,410,140
60-35-5	Acetamide	7	1	0	920,000	0	920,008
79-06-1	Acrylamide	6,922	12,155	1,929	6,120,154	235	6,141,395
107-13-1	Acrylonitrile	270,587	997,712	9,539	5,193,028	618	6,471,484
60-09-3	4-Aminobenzene	0	0	0	64	0	64
92-67-1	4-Aminobiphenyl	0	0	0	2	0	2
90-04-0	o-Anisidine	966	65	74	0	0	1,105
7440-38-2	Arsenic	2,444	4,408	299	0	27,351	34,502
1332-21-4	Asbestos (friable)	1,055	2,590	1	0	131,404	135,050
1912-24-9 ^(c)	Atrazine	3,468	19,221	1,656	0	637,036	661,381
71-43-2	Benzene	4,039,259	5,239,734	21,300	275,242	16,468	9,592,003
98-07-7	Benzoic trichloride	6,446	50	0	0	0	6,496
7440-41-7	Beryllium	3	832	26	0	22,189	23,050
—	Beryllium compounds	0	360	2	0	23,000	23,362
542-88-1	Bis(chloromethyl) ether	0	0	0	0	0	0
106-99-0	1,3-Butadiene	1,437,480	1,476,081	5,398	0	277	2,919,236
7440-43-9	Cadmium	2,480	9,459	458	0	19,938	32,335
—	Cadmium compounds	7,860	33,253	650	109	49,119	90,991
56-23-5	Carbon tetrachloride	140,135	254,041	717	53,966	0	448,859
57-74-9	Chlordane	823	0	22	0	0	845
115-28-6 ^(c)	Chlorendic acid	0	6	0	0	0	6
106-47-8 ^(c)	p-Chloroaniline	11	256	827	0	0	1,094
67-66-3	Chloroform	3,326,071	6,907,283	329,330	33,276	4,297	10,600,257
107-30-2	Chloromethyl methyl ether	11	2,854	10	0	0	2,875
563-47-3 ^(c)	3-Chloro-2-methyl-1-propene	86	19,543	0	0	0	19,629
—	Chlorophenols	1,960	3,037	30	105,687	0	110,714
6459-94-5 ^(c)	C.I. Acid Red 114	0	0	0	0	0	0
16071-86-6	C.I. Direct Brown 95	0	0	0	0	0	0
7440-48-4	Cobalt	13,623	20,872	17,295	0	48,334	100,124
—	Cobalt compounds	4,005	22,134	70,388	22,657	180,417	299,601
8001-58-9	Creosote	411,041	494,525	8,294	0	500	914,360
120-71-8	p-Cresidine	1,706	2,900	0	0	0	4,606
135-20-6	Cupferron	0	0	0	0	0	0
94-75-7	2,4-D (acetic acid)	2,580	4,308	1,083	250	4,325	12,546
1929-73-3 ^(c)	2,4-D butoxyethyl ester	255	255	0	0	0	510
94-80-4 ^(c)	2,4-D butyl ester	0	3	0	0	0	3
1928-43-4 ^(c)	2,4-D 2-Ethylhexyl ester	1,510	1,255	250	0	0	3,015
101-80-4	4,4'-Diaminodiphenyl ether	5	18	359	0	0	382
95-80-7	2,4-Diaminotoluene	250	250	0	0	0	500
25376-45-8	Diaminotoluene (mixed isomers)	4,372	5,222	5,522	7,050	55	22,221
106-93-4	1,2-Dibromoethane	7,858	4,514	306	0	256	12,934
106-46-7	1,4-Dichlorobenzene	117,473	126,323	1,287	0	3,100	248,183
25321-22-6	Dichlorobenzene (mixed isomers)	210	5,233	0	0	0	5,443
91-94-1	3,3'-Dichlorobenzidine	5	6	0	0	0	11
612-83-9 ^(c)	3,3'-Dichlorobenzidine dihydrochloride	0	0	0	0	0	0
64969-34-2 ^(c)	3,3'-Dichlorobenzidine sulfate	0	0	0	0	0	0
107-06-2	1,2-Dichloroethane	593,163	640,757	5,194	24,339	256	1,263,709
75-09-2	Dichloromethane	22,188,420	33,930,771	28,370	1,140,335	2,064	57,289,960
10061-02-6 ^(c)	trans-1,3-Dichloropropene	250	6	0	0	0	256
542-75-6	1,3-Dichloropropylene	20,801	10,466	193	0	0	31,460
62-73-7	Dichlorvos	5	250	5	0	0	260
117-81-7	Di-(2-ethylhexyl) phthalate	194,958	334,570	867	0	126,159	656,554
64-67-5	Diethyl sulfate	6,846	132	0	0	0	6,978



1995

Table 4-22. TRI Releases to Air, Water, and Land of OSHA Carcinogens, 1995 (Alphabetically Ordered), Cont.

CAS Number	Chemical	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
94-58-6	Dihydrosafrole	250	5	0	0	0	255
119-90-4	3,3'-Dimethoxybenzidine	0	0	0	0	0	0
20325-40-0 (M)	3,3'-Dimethoxybenzidine dihydrochloride	5	5	0	0	0	10
68-12-2 (M)	N,N-Dimethylformamide	564,526	2,278,664	73,106	1,099,000	1,710	4,017,006
57-14-7	1,1-Dimethyl hydrazine	781	38	0	0	0	819
77-78-1	Dimethyl sulfate	5,154	1,278	1	0	0	6,433
123-91-1	1,4-Dioxane	114,767	108,098	216,689	0	5,736	445,290
120-36-5 (M)	2,4-DP	255	5	0	0	0	260
2702-72-9 (M)	2,4-D sodium salt	0	0	0	0	0	0
106-89-8	Epichlorohydrin	200,269	110,980	26,937	0	18,874	357,060
140-88-5	Ethyl acrylate	98,573	254,678	547	0	523	354,321
151-56-4	Ethyleneimine	0	3	0	0	0	3
75-21-8	Ethylene oxide	430,888	408,341	5,225	130,000	2,208	976,662
96-45-7	Ethylene thiourea	5	520	0	0	0	525
50-00-0	Formaldehyde	1,796,338	9,906,100	277,099	7,313,034	133,825	19,426,396
76-44-8	Heptachlor	203	0	6	0	0	209
118-74-1	Hexachlorobenzene	477	89	6,458	480	0	7,504
302-01-2	Hydrazine	9,931	3,593	3	0	5	13,532
10034-93-2	Hydrazine sulfate	0	0	0	200,000	0	200,000
7439-92-1	Lead	342,989	387,105	10,595	0	2,342,855	3,083,544
58-89-9	Lindane	250	250	0	0	0	500
93-65-2 (M)	Mecoprop	518	1,298	0	0	0	1,816
94-74-6 (M)	Methoxone	755	506	0	0	0	1,261
101-14-4	4,4'-Methylenebis(2-chloro-aniline)	250	10	0	0	0	260
101-61-1	4,4'-Methylenebis(N,N-dimethyl) benzeneamine	5	5	0	0	0	10
101-77-9	4,4'-Methylenedianiline	8,546	1,791	63	23,110	0	33,510
90-94-8	Michler's ketone	0	1,577	0	0	0	1,577
134-32-7	alpha-Naphthylamine	0	0	0	0	0	0
7440-02-0	Nickel	146,458	180,645	23,703	6,370	371,024	728,200
—	Nickel compounds	107,385	156,149	53,029	107,136	2,291,930	2,715,629
139-13-9	Nitrilotriacetic acid	1	0	34	2,900	0	2,935
79-46-9	2-Nitropropane	21,057	10,208	3,000	0	0	34,265
59-89-2	N-Nitrosomorpholine	0	0	0	0	0	0
87-86-5	Pentachlorophenol	1,825	4,441	2,439	0	250	8,955
57-41-0 (M)	Phenytoin	0	0	0	0	0	0
—	Polybrominated biphenyls	0	0	0	0	0	0
1336-36-3	Polychlorinated biphenyls (PCBs)	0	0	0	0	0	0
— (M)	Polycyclic aromatic compounds	80,920	603,381	4,915	0	14,164	703,380
7758-01-2 (M)	Potassium bromate	5	0	0	0	0	5
1120-71-4	Propane sultone	0	0	0	0	0	0
75-55-8	Propyleneimine	564	36	0	0	0	600
75-56-9	Propylene oxide	345,822	493,042	29,934	22,577	4,403	895,778
81-07-2	Saccharin (manufacturing)	90	9	0	0	0	99
94-59-7	Safrole	250	5	0	0	0	255
100-42-5	Styrene	12,115,785	29,359,298	17,570	209,945	171,010	41,873,608
96-09-3	Styrene oxide	1	12	0	0	0	13
127-18-4	Tetrachloroethylene	4,493,166	4,884,751	2,407	20,481	6	9,400,811
62-56-6	Thiourea	872	758	1,487	5,000	250	8,367
584-84-9	Toluene-2,4-diisocyanate	3,666	4,139	0	0	0	7,805
91-08-7	Toluene-2,6-diisocyanate	984	2,060	0	0	0	3,044
26471-62-5	Toluenediisocyanate (mixed isomers)	14,783	33,814	105	0	275	48,977

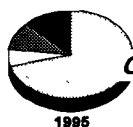


Table 4-22. TRI Releases to Air, Water, and Land of OSHA Carcinogens, 1995 (Alphabetically Ordered), Cont.³⁰

CAS Number ³¹	Chemical	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
95-53-4	o-Toluidine	9,557	2,029	256	22,140	12	33,994
79-01-6	Trichloroethylene	12,230,811	13,253,424	1,477	550	3,577	25,489,839
88-06-2	2,4,6-Trichlorophenol	135	26	210	0	0	371
96-18-4 ³²	1,2,3-Trichloropropane	10,251	830	1,600	0	0	12,681
51-79-6	Urethane	124	0	0	0	0	124
108-05-4	Vinyl acetate	1,068,111	2,756,124	8,269	783,829	1,717	4,618,050
593-60-2	Vinyl bromide	43,460	11,470	0	0	0	54,930
75-01-4	Vinyl chloride	319,592	722,011	525	33	1	1,042,162
87-62-7	2,6-Xylidine	54	221	0	0	0	275
	Subtotal	69,018,638	128,344,823	1,505,216	24,448,629	6,817,108	230,134,414
	Total for All TRI Chemicals	385,094,609	1,177,227,504	136,315,624	234,979,709	275,131,965	2,208,749,411

known or suspect carcinogen by virtue of appearing in one of three sources:

1. National Toxicology Program (NTP), "Annual Report on Carcinogens" (Latest Edition);
2. International Agency for Research on Cancer (IARC) "Monographs" (Latest Editions); or
3. 29 CFR 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration.

The *de minimis* limitation is 1.0% for chemicals that do not meet the above OSHA carcinogen criteria. The carcinogen designation in the list of chemicals relates to any chemical that the Agency determined met the above OSHA criteria for the 0.1% *de minimis* limitation. Box 4-4 shows the specific bases for which the individual chemical was designated as a known or suspect carcinogen. This list was recently updated based on a review of the NTP, IARC, and OSHA sources.

Certain metal compound categories have two *de minimis* limitations. For example, hexavalent chromium compounds and inorganic arsenic compounds meet the OSHA carcinogen criteria, while trivalent chromium compounds and organic arsenic do not meet the OSHA criteria. Release and transfer information on these groups is included in Table 4-22, even though not all compounds may meet the criteria.

Table 4-22 provides the releases for OSHA carcinogens reported to TRI. Of the 116 carcinogens for which TRI forms were submitted in 1995, 21 are newly added chemicals. Total releases of all OSHA carcinogens were 230.1 million pounds, including 5.4 million pounds of the newly added OSHA carcinogens.

Releases and Transfers of All TRI Chemicals

Releases and transfers of all TRI chemicals reported in 1995 appear in Table 4-33. This table, and a similar table presenting waste management data, occur at the end the chapter.

³⁰ The list of TRI chemicals meeting the OSHA carcinogen standard and, therefore, reported when in a mixture at a concentration level below the *de minimis* level of 0.1%, has been updated, and this list reflects the update.

³¹ Compound categories do not have CAS numbers (—).

³² Newly reportable in 1995.



Prevention and Management of TRI Chemicals in Waste

The Pollution Prevention Act of 1990 (PPA) requires facilities to report information about the quantities of TRI chemicals managed in waste, both on- and off-site. The PPA also requires facilities to provide information about the efforts they have made to reduce or eliminate those quantities. Facilities began reporting this information for the 1991 reporting year. This section summarizes the PPA data provided by facilities in their 1995 TRI reports.

The Pollution Prevention Act established as national policy that source reduction is the preferred approach to managing waste. Source reduction means preventing waste from being generated. The PPA also established as national policy a hierarchy of waste management options, illustrated in Figure 4-3, for situations where source reduction cannot be implemented feasibly.

Although source reduction is the preferred method of reducing risk, environmentally sound recycling shares many of its advantages. Like source reduction, recycling reduces the need for treatment or disposal of waste and helps conserve energy and natural resources. Where source reduction and recycling are not feasible, waste can be treated. Release (including disposal) of a chemical is viewed as a last resort, to be employed only if the preferred methods of waste management cannot be implemented. The PPA did not specifically address the combustion of waste for energy recovery as a waste management option. However, because energy recovery shares aspects of recycling and treatment, EPA chose to list this activity separately in the waste management hierarchy.

Throughout this chapter, data tables on waste management present information in the order of the hierarchy: recycling, energy recovery, treatment, and release/disposal.

WASTE MANAGEMENT INFORMATION COLLECTED

The waste management information required by the PPA is collected in Section 8 of the TRI reporting form (see EPA's Form R in Appendix C). It includes: quantity released to the environment at the facility and sent off-site for disposal; quantities used for energy recovery at the facility or sent off-site for energy recovery; quantities recycled at the facility or sent off-site for recycling; and quantities treated at the facility or sent off-site for treatment. The amount of TRI chemicals in waste reported includes both waste generated by the facility and waste received by the facility for the purpose of waste management. Box 4-5 describes what these quantities should represent, and Figure 4-4 illustrates this information.

Facilities report this waste management data for the reporting year (1995), for the previous year (1994), and for the two following years (1996 and 1997). Quantities reported for 1994 and

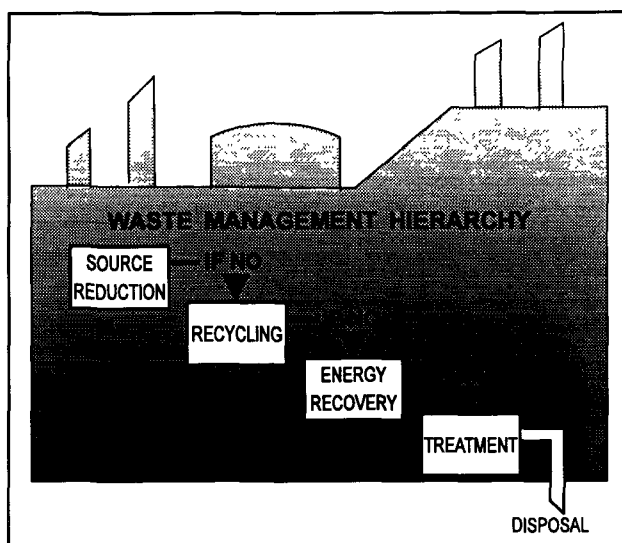


Figure 4-3. Waste Management Hierarchy.



What Does This Waste Management Information Represent?

Quantity released (Section 8.1 of Form R). This is the total quantity of the toxic chemical that was released to the environment or disposed of at the facility (directly discharged to air, land, and water, and injected underground), or sent off-site for disposal. This quantity is the sum of the amounts reported in Sections 5 and 6 of Form R (transfers for disposal only) less any amount(s) associated with non-routine events.

Quantity used for energy recovery on-site (Section 8.2 of Form R). This is the quantity of the toxic chemical that was combusted in some form of energy recovery device, such as a furnace, including kilns, or a boiler. The toxic chemical should have a heating value high enough to sustain combustion. To avoid double-counting, the amount reported represents the amount destroyed in the combustion process, not the amount that entered the energy recovery unit. For example, 100,000 pounds of toluene entered a boiler that, on average, combusted 98% of the toluene. Any remaining toluene was discharged to air. A total of 98,000 pounds is reported as combusted for energy recovery (the remaining 2,000 pounds is reported as released).

Quantity used for energy recovery off-site (Section 8.3 of Form R). This is the quantity of the toxic chemical that left the facility boundary for energy recovery, not the amount combusted at the off-site location. The toxic chemical must have a significant heating value, and the off-site location must have some form of energy recovery unit in place. This quantity includes the amount(s) reported in Section 6 of Form R as transferred off-site for energy recovery, less any amount(s) associated with non-routine events.

Quantity recycled on-site (Section 8.4 of Form R). This is the quantity of the toxic chemical recovered at the facility and made available for further use. It is not the quantity that entered an on-site recycling or recovery operation.

Quantity recycled off-site (Section 8.5 of Form R). This is the quantity of the toxic chemical that left the facility boundary for recycling, not the amount recovered at the off-site location. This quantity includes the amount(s) reported in Section 6 of Form R as transferred off-site for recycling, less any amount(s) associated with non-routine events.

Quantity treated on-site (Section 8.6 of Form R). This is the quantity of the toxic chemical destroyed in on-site waste treatment operations, not the amount that entered any treatment operation. For example, if 100,000 pounds of benzene were combusted in an incinerator that destroyed 99% of the benzene, the facility would report 99,000 pounds as treated on-site (the remaining 1,000 pounds would be reported as released).

Quantity treated off-site (Section 8.7 of Form R). This is the quantity of the toxic chemical that left the facility boundary and was sent to POTWs or other off-site locations for treatment, not the amount that was destroyed at the off-site location(s). This quantity includes the amount(s) reported in Section 6 of Form R as transferred to POTWs or other off-site locations for treatment, less any amount(s) associated with non-routine events.

Quantity released to the environment due to one-time events (Section 8.8 of Form R). This amount is referred to as non-production related waste and is the quantity released to the environment or sent off-site for recycling, energy recovery, treatment, or disposal due to one-time events not associated with routine production practices. Such events include catastrophic events, such as accidental releases, as well as remedial actions (clean up). This quantity is separated from the quantities recycled, used for energy recovery, treated, and released, to allow for distinctions to be made between those quantities that are routinely associated with production operations and are more amenable to source reduction and those quantities that are not routinely associated with production processes and are not as amenable to source reduction because they are not readily anticipated. This separation of quantities is important in assessing progress in source reduction at facilities.

Box 4-5. What Does This Waste Management Information Represent?

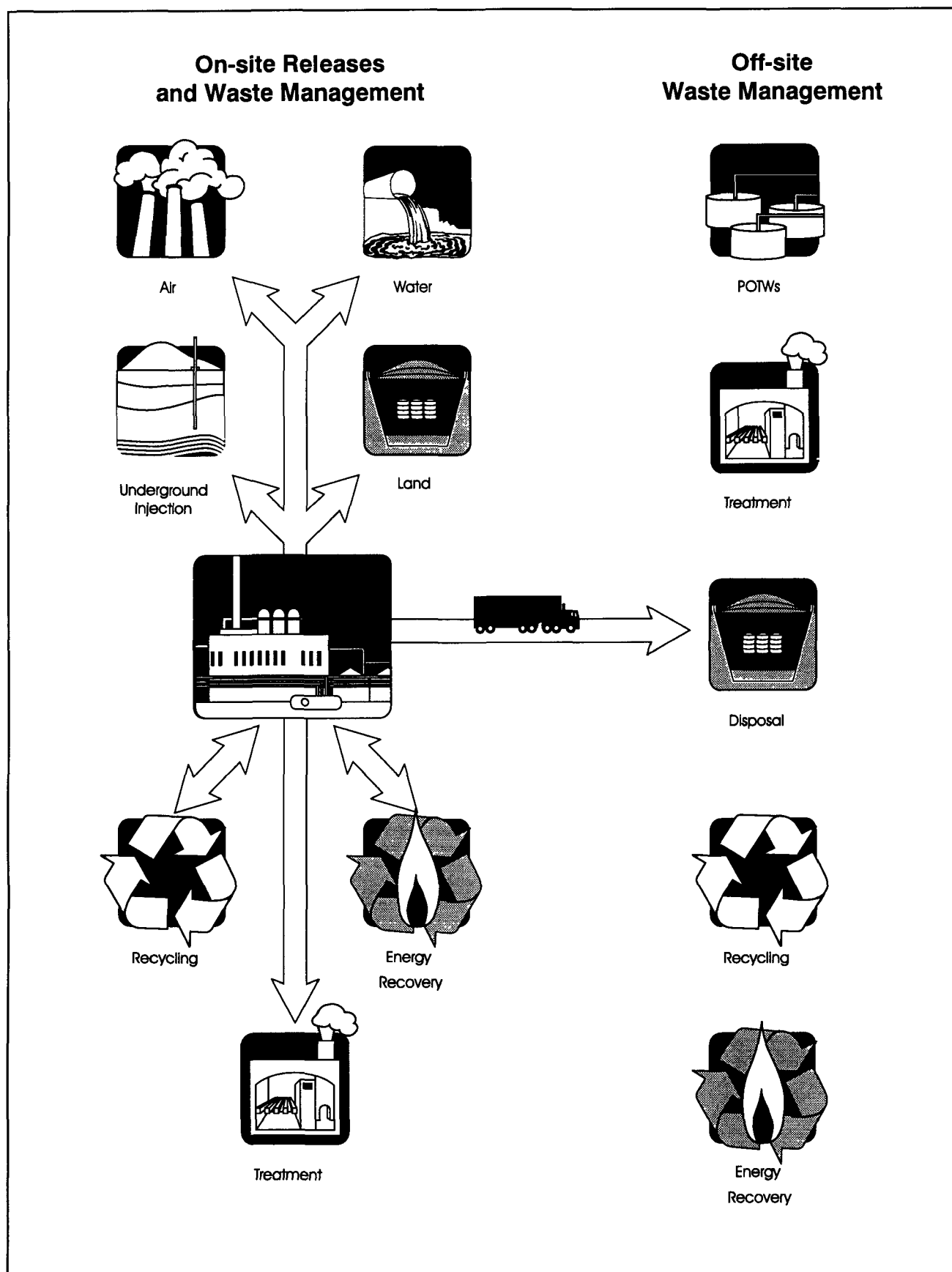
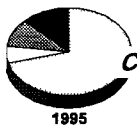


Figure 4-4. Waste Management Information Collected under TRI.



1995 are estimates of amounts already managed. The quantities reported for 1996 and 1997 are projections only. The PPA requires these projections to encourage facilities to consider future waste generation and source reduction of those quantities as well as movement up the waste management hierarchy. Future-year estimates are not commitments that facilities reporting under TRI must meet.

The individual quantities are mutually exclusive to avoid double-counting of TRI chemicals in waste. For example, an incinerator may destroy 99% of the chemical in the waste; in this case, the amount reported as treated on site is the amount destroyed by the incinerator, not the amount that entered the incinerator. The amount not destroyed in incineration is reported as released. The sum of the individual quantities in a given year equals the total quantity of TRI chemicals in waste resulting from routine production operations at a facility during that year.

For the reporting year only, facilities also must report the quantity of waste released (including disposal) as a result of activities other than routine production operations. This quantity appears in the data tables as “non-production related waste.” It includes waste released to the environment at the facility or transferred off-site because of catastrophic events or remedial (clean-up) actions occurring at the facility. Non-production related waste is considered less amenable to source reduction because facilities cannot reasonably anticipate these quantities.

For the 1995 reporting year, 286 chemicals and chemical categories were added to the list of chemicals to be reported under TRI. In addition, definitions of how to report ammonia, hydrochloric acid, and sulfuric acid have changed. These definition changes are described in Chapter 5. These revisions affect the reporting

of waste management information for the prior year (1994). Facilities that did not track the added chemicals before 1995 did not report an amount for 1994. Also, facilities may have reported under the old definition for ammonia, hydrochloric acid, or sulfuric acid for 1994, but under the new definition for 1995. Because of these inconsistencies from 1994 to 1995, tables in this chapter show only the estimates for 1995 and projections for 1996 and 1997. All data are taken from the 1995 forms.

SOURCE REDUCTION ACTIVITIES

In addition to reporting quantities of toxic chemicals managed in waste, facilities must provide information about any source reduction activities they implemented during the reporting year. Source reduction activities are undertaken to reduce the amount of a toxic chemical which enters a waste stream or is otherwise released to the environment. By reducing the generation of toxic chemicals in waste, source reduction activities reduce the need to recycle, treat, or dispose of toxic chemicals. Box 4-6 explains source reduction as defined by the PPA.

A reported source reduction activity could have been implemented at any time during the reporting year. This is important to consider when analyzing the impact that source reduction activities may have had on the total quantity of waste that had to be managed by a facility during the year. The implementation of a source reduction activity late in the reporting year would have a smaller impact on the amount of waste that was managed during the year than implementation of the same activity earlier in the reporting year.

Table 4-23 summarizes national source reduction activity reporting by category for 1995. The most frequently reported categories of source reduction activities were good operating prac-



What is Source Reduction?

Through source reduction, risks to people and the environment can be reduced, financial and natural resources can be saved that would otherwise have to be expended on environmental clean-up or pollution control, and industrial processes can become more efficient. Source reduction is defined in the PPA as any practice that:

- reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions); and
- reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

Source reduction practices can include equipment, process, procedure, or technology modifications, reformulation or redesign of products, substitution of raw materials, and improvements in maintenance and inventory controls. Under this definition, waste management activities, including recycling, treatment, and disposal, are not considered forms of source reduction.

Box 4-6. What Is Source Reduction?

Table 4-23. Facilities and Forms Reporting Source Reduction Activity, by Category, 1995.

Source Reduction Activity Category	Facilities Reporting Source Reduction Activity		Forms Reporting Source Reduction Activity ³²	
	As Percent of All TRI Facilities		As Percent of All TRI Forms	
	Number	Percent	Number	Percent
Good Operating Practices	2,829	12.9	6,662	9.1
Inventory Control	700	3.2	1,599	2.2
Spill and Leak Prevention	1,361	6.2	3,441	4.7
Raw Material Modifications	1,601	7.3	2,667	3.6
Process Modifications	2,261	10.3	4,869	6.6
Cleaning and Degreasing	855	3.9	1,236	1.7
Surface Preparation/Finishing	767	3.5	1,579	2.2
Product Modification	666	3.0	1,265	1.7
Any Source Reduction Activity ³³	6,309	28.7	15,082	20.6

³² All source reduction activities on a form are counted in the corresponding category.

³³ Totals do not equal the sum of the categories because facilities and forms may report more than one source reduction activity.

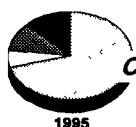


Table 4-24. Actual and Projected Quantities of TRI Chemicals in Waste, 1995-1997.

Management Activity	1995 Pounds	Projected	
		1996 Pounds	1997 Pounds
Recycled On-site	19,048,561,729	18,929,367,580	18,891,805,311
Recycled Off-site	2,284,063,998	2,301,880,622	2,322,894,555
Energy Recovery On-site	2,902,970,808	2,945,189,012	2,904,081,431
Energy Recovery Off-site	500,682,639	485,020,388	480,503,117
Treated On-site	7,290,373,550	7,296,118,653	7,320,072,364
Treated Off-site	557,077,046	514,140,515	511,360,316
Quantity Released/Disposed of	2,443,328,448	2,416,171,261	2,333,531,761
Total Production-related Waste	35,027,058,218	34,887,888,031	34,764,248,855

tices (9.1% of all forms), process modifications (6.6% of all forms), and spill and leak prevention (4.7% of all forms). These categories were also the most frequently reported in previous years.

QUANTITIES OF TRI CHEMICALS IN WASTE

National Overview

In 1995, facilities reported managing 35.03 billion pounds of TRI chemicals in production-related waste (see Table 4-24). This amount includes submissions for all chemicals reported in 1995, including those newly added for the 1995 reporting year. These same facilities project that their production-related waste will decrease to 34.76 billion pounds by 1997, a projected decrease of just 0.8%.

Table 4-25 indicates the impact of the new chemical reporting on these projections. Although total production-related waste for all TRI chemicals is projected to *decrease* 0.8% by 1997, the projected change would be an *increase* without n-hexane and nitrate compounds—the two new chemicals reported in the greatest quantities. The quantity of n-hexane in waste is projected to decline 4.6% over the next

two years. Nitrate compounds are projected to decrease 4.3%. (Without those chemicals, projections for the newly added chemicals as a group would show a small increase, less than 0.7%.) For other TRI chemicals—those already reportable to TRI before the chemical expansion—facilities have projected an *increase* in production-related waste of nearly 1.1% by 1997.

Figure 4-5 shows the distribution of total production-related waste as reported by waste management activity: 60.9%, or 21.3 billion pounds, was recycled on or off site; 9.7% was

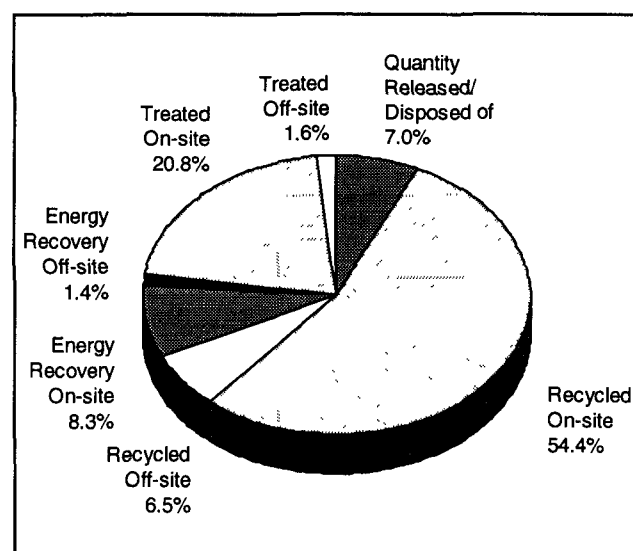


Figure 4-5. Management of TRI Chemicals in Waste, by Activity, 1995.



Table 4-25. Actual and Projected Quantities of TRI Chemicals in Waste, Newly Added Chemicals Compared to Other TRI Chemicals, 1995-1997.

Total Production-related Waste	1995 Pounds	Projected		Projected Change 1995-1997 Percent
		1996 Pounds	1997 Pounds	
Newly Added Chemicals	11,294,447,717	11,069,249,832	10,782,751,366	-4.53
n-Hexane	10,782,506,710	10,569,342,935	10,283,158,615	-4.63
Nitrate Compounds	318,258,827	306,283,441	304,657,729	-4.27
All Other TRI Chemicals	23,732,610,501	23,818,638,199	23,981,497,489	1.05
All TRI Chemicals	35,027,058,218	34,887,888,031	34,764,248,855	-0.75

burned for energy recovery, 22.4% was treated, and 7.0% was released (which includes disposal) to the environment in 1995.

Changes in the list of chemicals subject to TRI reporting, discussed above, have significantly influenced this reported distribution by waste management activity over the years in which PPA data have been collected. Last year's TRI public data release, for example, reported that 31.7% of production-related waste was recycled on site in 1994. In 1995, however, facilities reported on-site recycling of 54.4% of total production-related waste. This is due, in large part, to on-site recycling of 10.60 billion pounds of n-hexane, a chemical newly added to the TRI list.

Facilities' projections for 1996 and 1997 show that they expect very little change in how they handle their waste in the next two years. Projections of 61.0% recycling of TRI chemicals in waste, 9.7% for energy recovery, 22.5% to treatment and 6.7% released or disposed of in 1997 are nearly identical to reported management of waste for 1995. The data indicate that, overall, facilities do not anticipate discernible progress in moving up the waste management hierarchy in the next two years.

Chemical-Specific Waste Management Data

Newly Reportable Chemicals

Facilities reported 11.3 billion pounds of total production-related waste for the chemicals and chemical categories added to TRI in 1995. This represents 32.2% of total production-related waste for all TRI chemicals for the year, as shown on Table 4-26.

As mentioned above, facilities reported on-site recycling of 10.60 billion pounds of n-hexane. This chemical also ranked first among the new chemicals for energy recovery (39.5 million pounds on- and off-site), and it was second for treatment (57.9 million pounds on- and off-site) and releases/disposal (77.7 million pounds). For nitrate compounds, 318.3 million pounds were reported (96.9 million pounds recycled, 76.3 million pounds treated, and 145.1 million pounds released or disposed of).

Tables 4-27 and 4-28 demonstrate the effect of n-hexane reporting in comparing waste management activity for added chemicals and for previously reportable chemicals. For new TRI chemicals as a whole, on-site recycling

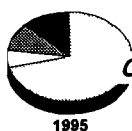


Table 4-26. Quantities of TRI Chemicals in Waste, Newly Added Chemicals Compared to Other TRI Chemicals, 1995.

Management Activity	Newly Added Chemicals Pounds	All TRI Chemicals Pounds	Newly Added as Percent of All TRI Chemicals Percent
Recycled On-site	10,711,148,826	19,048,561,729	56.2
Recycled Off-site	25,907,492	2,284,063,998	1.1
Energy Recovery On-site	60,023,304	2,902,970,808	2.1
Energy Recovery Off-site	22,061,757	500,682,639	4.4
Treated On-site	130,870,587	7,290,373,550	1.8
Treated Off-site	94,587,655	557,077,046	17.0
Quantity Released/Disposed of	249,848,096	2,443,328,448	10.2
Total Production-related Waste	11,294,447,717	35,027,058,218	32.2
Non-Production related Waste	677,373	32,768,232	2.1

amounted to 94.8% of total production-related waste; for other TRI chemicals, 35.1% of production-related waste was reported in this category. Without n-hexane, however, a smaller portion of the new chemicals are reported as recycled—the top of the waste management hierarchy—and a greater portion released or disposed of—the bottom of the hierarchy. For new chemicals other than n-hexane, one pound

in three of production-related waste is released or disposed of, compared to one in 10 for previously reportable chemicals.

All TRI Chemicals

Table 4-29 presents the top 20 chemicals for TRI chemicals in production-related waste, again led by n-hexane. Waste management of methanol, the second chemical on this list, was

Table 4-27. Quantities of TRI Chemicals in Waste by Waste Management Activity, Newly Added Chemicals Compared to Other TRI Chemicals, 1995.

Management Activity	Newly Added Chemicals Pounds	Percent of Total Percent	Other TRI Chemicals Pounds	Percent of Total Percent	All TRI Chemicals Pounds	Percent of Total Percent
Recycled On-site	10,711,148,826	94.8	8,337,412,903	35.1	19,048,561,729	54.4
Recycled Off-site	25,907,492	0.2	2,258,156,506	9.5	2,284,063,998	6.5
Energy Recovery On-site	60,023,304	0.5	2,842,947,504	12.0	2,902,970,808	8.3
Energy Recovery Off-site	22,061,757	0.2	478,620,882	2.0	500,682,639	1.4
Treated On-site	130,870,587	1.2	7,159,502,963	30.2	7,290,373,550	20.8
Treated Off-site	94,587,655	0.8	462,489,391	1.9	557,077,046	1.6
Quantity Released/Disposed of	249,848,096	2.2	2,193,480,352	9.2	2,443,328,448	7.0
Total Production-related Waste	11,294,447,717	100.0	23,732,610,501	100.0	35,027,058,218	100.0
Non-Production related Waste	677,373		32,090,859		32,768,232	



more diverse than for n-hexane: 22.4% of methanol was reported as recycled, 20.0% was used for energy recovery, 46.5% was treated, and 11.0% was released/disposed of. For toluene, 59.2% was reported as recycled on-site, and for hydrochloric acid, 76.2% was reported as treated on site. These chemicals ranked third and fourth, respectively, among all TRI chemicals in production-related waste.

For recycling, the leading chemicals after n-hexane were copper with 1.13 billion pounds and toluene with 1.03 billion pounds. The top chemicals for energy recovery were ethylene and propylene, 548.4 million pounds and 491.3 million pounds, respectively. Reported quantities of treatment of hydrochloric acid totaled 1.10 billion pounds; methanol followed with 1.07 billion pounds. Facilities reported releases and disposal of 253.2 million pounds of methanol and 195.3 million pounds of ammonia, first and second in that category. The chemical most reported for non-production related waste was zinc compounds (11.1 million pounds). Methanol ranked seventh for recycling, third for energy recovery, second for treatment, and first for releases/disposal.

Waste Management Data by State

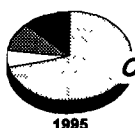
Table 4-30 provides the waste management data for each state. The table includes quantities of TRI chemicals in production-related waste that facilities estimated for 1995 and projected for 1996 and 1997, for each waste management activity, along with the quantity of non-production related waste for 1995.

It is important to note that facilities may vary in how they interpret some of the reporting requirements under the PPA. EPA has not yet specifically defined in rulemaking the reporting requirements for these data elements, so some facilities may include in their reports amounts that other facilities do not believe they must include. Because of this, higher quantities of TRI chemicals in waste for a particular state or industry may reflect not only differences in actual quantities, but also different interpretations of the reporting requirements.

Facilities in Texas reported the largest quantity of TRI chemicals in production-related waste in 1995, with 3.68 billion pounds. Iowa followed with 3.17 billion pounds, Georgia with 2.91 billion, North Carolina with 2.40 billion, and

Table 4-28. Quantities of TRI Chemicals in Waste by Waste Management Activity, Newly Added Chemicals Compared to Other TRI Chemicals, Excluding n-Hexane, 1995.

Management Activity	Newly Added Chemicals Pounds	Percent of Total Percent	Other TRI Chemicals Pounds	Percent of Total Percent	All TRI Chemicals Pounds	Percent of Total Percent
Recycled On-site	110,657,459	21.6	8,337,412,903	35.1	8,448,070,362	34.8
Recycled Off-site	19,067,753	3.7	2,258,156,506	9.5	2,277,224,259	9.4
Energy Recovery On-site	34,833,893	6.8	2,842,947,504	12.0	2,877,781,397	11.9
Energy Recovery Off-site	7,710,918	1.5	478,620,882	2.0	486,331,800	2.0
Treated On-site	81,168,022	15.9	7,159,502,963	30.2	7,240,670,985	29.9
Treated Off-site	86,384,509	16.9	462,489,391	1.9	548,873,900	2.3
Quantity Released/Disposed of	172,118,453	33.6	2,193,480,352	9.2	2,365,598,805	9.8
Total Production-related Waste	511,941,007	100.0	23,732,610,501	100.0	24,244,551,508	100.0
Non-Production Related Waste	597,201		32,090,859		32,688,060	



1995

Table 4-29. Top 20 TRI Chemicals with the Largest Total Production-related Waste, 1995.

CAS Number ³⁴	Chemical	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
110-54-3	n-Hexane	10,600,491,367	6,839,739	25,189,411	14,350,839
67-56-1	Methanol	492,833,206	23,223,080	366,054,613	94,915,113
108-88-3	Toluene	1,006,142,890	24,998,832	214,713,627	77,679,933
7647-01-0	Hydrochloric acid	195,275,346	24,738,101	100,650	1,759
7664-93-9	Sulfuric acid	689,399,526	5,436,470	66,777	24,524
74-85-1	Ethylene	196,803,539	3	537,817,987	10,615,177
7440-50-8	Copper	610,354,812	517,636,686	506	48,192
—	Lead compounds	501,721,918	296,435,900	0	64,595
7664-41-7	Ammonia	262,512,857	12,941,288	43,263,891	99,379
115-07-1	Propylene	6,713,304	0	488,140,123	3,132,285
7550-45-0	Titanium tetrachloride	710,000,000	129,787	0	0
7664-38-2	Phosphoric acid	216,200,610	11,790,110	14,792	57,328
7782-50-5	Chlorine	344,997,609	1,878,625	499	1,585
107-21-1	Ethylene glycol	335,924,640	128,105,152	5,926,147	13,140,499
1330-20-7	Xylene (mixed isomers)	134,851,248	42,630,930	141,832,236	70,258,502
—	Zinc compounds	125,376,642	227,779,027	445,200	392,497
—	Copper compounds	244,873,532	194,175,424	0	31,078
78-93-3	Methyl ethyl ketone	66,061,415	20,954,201	112,381,304	43,476,004
7697-37-2	Nitric acid	53,744,434	3,655,904	250,245	255
—	Glycol ethers	197,112,822	3,546,047	42,690,882	13,208,353
	Subtotal	16,991,391,717	1,546,895,306	1,978,888,890	341,497,897
	Total for All TRI Chemicals	19,048,561,729	2,284,063,998	2,902,970,808	500,682,639

Louisiana with 2.11 billion. Of these top five states, only Texas and Louisiana—first and fifth for TRI chemicals in production-related waste—ranked among the top five states for total releases, discussed earlier in this chapter. Although they are second and third for TRI chemicals in production-related waste, Iowa and Georgia were 23rd and 13th for total releases. North Carolina, ranking fourth for production related waste, was seventh for total releases. These three states rank high for total production-related waste because a total of eight facilities in the three states each reported over 100 million pounds of on-site recycling of n-hexane.

In 1995, facilities in Pennsylvania reported 15.6 million pounds of TRI chemicals in non-production related waste, nearly half the nation-

wide total. Non-production related waste is waste associated with one-time or accidental events.

Waste Management Data by Industry

Table 4-31 provides the PPA data for each industry group. The chemical industry reported the largest quantity of TRI chemicals in waste, with 11.21 billion pounds in 1995. The food industry followed with 10.56 billion pounds, and primary metals ranked third with 4.08 billion pounds. For total releases of TRI chemicals, discussed earlier in this chapter, the chemical and primary metals industries led all industry groups, but manufacturers of food and related products ranked high for total production-related waste because 14 facilities each reported more than 100 million pounds of on-site recycling of n-hexane.

³⁴ Compound categories do not have CAS numbers (—).



Table 4-29, Cont.

Chemical	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production-related Waste Pounds	Non-Production related Waste Pounds
n-Hexane	49,702,565	8,203,146	77,729,643	10,782,506,710	80,172
Methanol	950,248,895	119,060,755	253,158,326	2,299,493,988	303,968
Toluene	214,220,366	19,796,400	143,045,725	1,700,597,773	362,200
Hydrochloric acid	1,071,628,383	26,717,774	86,043,333	1,404,505,346	92,830
Sulfuric acid	648,325,161	13,133,147	27,871,906	1,384,257,511	85,997
Ethylene	494,275,764	2,162,284	33,662,423	1,275,337,177	765,679
Copper	42,487,503	1,771,218	10,992,817	1,183,291,734	91,982
Lead compounds	28,985,340	7,362,779	26,160,607	860,731,139	3,696,880
Ammonia	313,392,551	18,693,194	195,255,566	846,158,726	1,061,025
Propylene	251,910,399	80,239	20,857,453	770,833,803	1,008,814
Titanium tetrachloride	23,836,598	2,928	52,646	734,021,959	11
Phosphoric acid	351,391,040	5,353,129	55,523,253	640,330,262	3,978,666
Chlorine	220,202,317	1,178,861	66,287,323	634,546,819	13,468
Ethylene glycol	65,607,518	33,978,940	22,718,666	605,401,562	304,762
Xylene (mixed isomers)	81,743,670	10,131,330	97,978,596	579,426,512	232,798
Zinc compounds	4,100,111	25,481,977	167,856,698	551,432,152	11,110,938
Copper compounds	26,660,346	2,419,861	49,569,311	517,729,552	1,323,104
Methyl ethyl ketone	69,274,977	6,272,909	69,647,997	388,068,807	229,484
Nitric acid	247,525,968	15,825,766	27,178,743	348,181,315	118,286
Glycol ethers	30,296,466	11,934,464	45,399,102	344,188,136	35,257
Subtotal	5,185,815,938	329,561,101	1,476,990,134	27,851,040,983	24,896,321
Total for All TRI Chemicals	7,290,373,550	557,077,046	2,443,328,448	35,027,058,218	32,768,232

In 1995, facilities reporting multiple SIC codes reported TRI chemicals in production-related waste of 1.89 billion pounds, fourth among industries. As indicated earlier in this chapter, TRI reporting forms allow facilities to report more than one SIC code to fully characterize their operations. Facilities that reported two or more two-digit SIC codes—for example, petroleum (29) and chemicals (28)—are assigned to the “multiple codes” category. Facilities in the paper industry ranked fifth, with 1.77 billion pounds.

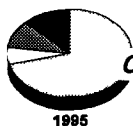
The primary metals industry also reported a greater quantity of TRI chemicals in non-production related waste than other industry groups, with 17.2 million pounds in 1995. The chemical industry followed, with 7.6 million pounds.

Waste Management Data by Federal Facilities

Federal facilities reported a total of 63.0 million pounds of total production-related waste in 1995 as shown on Table 4-32. As with TRI releases, Defense Department facilities accounted for the majority of this waste, 58.3 million pounds in 1995, or 92.6% of total production-related waste reported by federal facilities. Most waste reported by federal facilities was managed by recycling, 39.9 million pounds (63.4%). Another 14.0 million pounds (22.2%) was reported as treated.

CHEMICAL-SPECIFIC DATA TABLE

Table 4-34, at the end of this chapter, presents information on quantities of all reported TRI chemicals in waste for 1995.



Chapter 4 — 1995 TRI Releases and Transfers

Table 4-30. Actual and Projected Quantities of TRI Chemicals in Waste, by State, 1995-1997 (Alphabetically Ordered).

State	Year	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
Alabama	95	1,039,961,282	34,802,014	47,013,113	13,551,946
	96	1,076,570,564	41,192,137	54,924,511	12,682,073
	97	1,062,053,944	42,042,680	60,099,132	12,996,042
Alaska	95	29,470	1,300	1,211,000	3
	96	20,470	59,800	461,000	0
	97	24,220	30,300	461,000	0
American Samoa	95	0	0	0	0
	96	0	0	0	0
	97	0	0	0	0
Arizona	95	515,494,688	51,350,722	507,107	941,330
	96	545,169,405	38,912,631	515,200	907,313
	97	544,163,274	39,749,199	586,100	968,381
Arkansas	95	202,594,425	51,845,479	35,872,755	6,742,229
	96	201,709,646	52,646,055	24,140,977	6,347,137
	97	207,366,140	56,745,586	25,404,882	5,773,882
California	95	206,444,042	69,640,122	39,075,581	9,087,444
	96	189,762,122	68,077,566	42,248,440	8,280,610
	97	188,444,774	69,563,573	44,772,744	8,250,673
Colorado	95	18,811,374	11,577,546	92,000,250	3,550,984
	96	16,068,502	11,900,618	9,000,250	3,708,461
	97	71,588,056	16,052,663	9,000,000	3,704,058
Connecticut	95	98,606,775	25,811,039	4,760,323	2,399,252
	96	85,409,887	25,171,414	4,141,787	2,207,714
	97	85,512,788	25,469,626	3,978,904	1,929,473
Delaware	95	29,000,208	17,129,003	332,839	2,420,812
	96	31,082,909	18,100,880	267,852	685,961
	97	34,081,916	19,003,314	343,112	651,935
District of Columbia	95	0	13,000	0	0
	96	0	18,000	0	0
	97	0	18,000	0	0
Florida	95	137,253,408	13,441,168	21,370,827	1,769,452
	96	151,277,376	15,097,915	23,074,196	1,415,052
	97	152,314,284	15,298,956	23,597,776	1,330,216
Georgia	95	2,494,411,977	36,376,040	56,518,511	8,101,748
	96	2,577,942,809	37,456,114	59,667,200	8,021,663
	97	2,705,651,942	38,145,434	60,857,780	8,118,244
Guam	95	0	0	0	0
	96	0	0	0	0
	97	0	0	0	0
Hawaii	95	5,002	111,493	0	3
	96	12,347	45,231	0	0
	97	19,516	45,132	0	0



Table 4-30.

State	Year	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production-Related Waste Pounds	Non-Production-Related Waste Pounds
Alabama	95	415,491,466	6,653,262	107,060,653	1,664,533,736	93,876
	96	413,543,177	6,840,623	95,972,828	1,701,725,913	
	97	424,316,927	6,897,675	84,030,775	1,692,437,175	
Alaska	95	2,005,209	11	7,099,225	10,346,218	170,000
	96	3,817,734	16	4,588,410	8,947,430	
	97	3,472,134	16	4,378,510	8,366,180	
American Samoa	95	0	0	5,300	5,300	0
	96	0	0	5,300	5,300	
	97	0	0	5,300	5,300	
Arizona	95	9,587,792	11,166,745	35,637,537	624,685,921	118,404
	96	9,670,376	7,824,274	36,725,727	639,724,926	
	97	9,664,798	7,239,389	35,533,592	637,904,733	
Arkansas	95	130,790,067	13,337,103	36,310,695	477,492,753	139,210
	96	131,799,299	15,996,497	33,342,253	465,981,864	
	97	134,594,507	18,524,168	31,911,617	480,320,782	
California	95	418,974,197	17,974,480	50,215,161	811,411,027	997,715
	96	418,042,535	16,313,220	43,474,847	786,199,340	
	97	427,496,193	16,306,238	40,812,273	795,646,468	
Colorado	95	9,337,860	1,729,857	5,078,151	142,086,022	31,087
	96	8,815,749	1,489,671	4,813,055	55,796,306	
	97	8,939,118	1,669,415	4,770,877	115,724,187	
Connecticut	95	40,409,525	8,084,609	13,648,278	193,719,801	56,724
	96	36,452,305	6,807,116	12,565,988	172,756,211	
	97	36,599,839	6,577,098	13,060,262	173,127,990	
Delaware	95	55,010,904	4,076,772	4,585,402	112,555,940	13,984
	96	51,944,530	3,884,467	3,989,397	109,955,996	
	97	53,869,980	3,954,095	4,151,519	116,055,871	
District of Columbia	95	2,680	27,301	29,100	72,081	0
	96	500	29,500	22,300	70,300	
	97	500	28,600	22,000	69,100	
Florida	95	183,724,530	9,333,067	81,888,042	448,780,494	4,128,628
	96	185,680,966	8,645,446	78,945,093	464,136,044	
	97	181,732,500	8,440,161	78,806,150	461,520,043	
Georgia	95	252,042,900	5,799,248	59,082,512	2,912,332,936	158,062
	96	256,808,008	7,388,481	59,520,477	3,006,804,752	
	97	267,368,603	7,024,155	59,406,109	3,146,572,267	
Guam	95	0	0	200	200	200
	96	0	0	0	0	
	97	0	0	0	0	
Hawaii	95	4,069,914	8,298	638,787	4,833,497	61
	96	3,756,843	8,208	597,877	4,420,506	
	97	3,469,932	8,108	595,098	4,137,786	



Chapter 4 — 1995 TRI Releases and Transfers

Table 4-30. Actual and Projected Quantities of TRI Chemicals in Waste, by State, 1995-1997 (Alphabetically Ordered), Continued.

State	Year	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
Idaho	95	393,375	596,858	26,600	56,781
	96	393,455	851,967	27,300	58,555
	97	612,031	1,011,340	28,100	60,508
Illinois	95	734,627,715	119,057,698	17,422,632	31,028,373
	96	772,716,732	104,939,932	17,491,910	25,666,926
	97	776,600,559	106,786,037	17,526,787	25,388,274
Indiana	95	300,416,187	229,129,767	107,341,738	11,508,371
	96	286,947,785	234,349,987	47,403,159	10,278,142
	97	290,966,529	251,327,106	47,873,965	9,721,442
Iowa	95	3,007,971,492	40,001,065	1,656,084	4,343,654
	96	2,751,304,273	43,813,044	1,699,140	4,047,223
	97	2,792,708,143	46,788,708	1,108,600	3,644,530
Kansas	95	1,193,781,505	40,689,545	152,588,205	2,435,078
	96	1,048,192,084	39,100,149	138,922,190	4,142,502
	97	944,088,410	38,951,216	148,623,363	5,597,484
Kentucky	95	278,090,960	53,811,501	59,507,244	7,941,919
	96	283,707,874	61,574,193	62,282,499	7,234,789
	97	288,221,114	64,269,256	62,691,656	7,240,899
Louisiana	95	722,620,966	53,000,108	308,611,165	13,245,752
	96	724,497,066	55,455,217	318,000,157	12,043,105
	97	685,373,825	55,948,978	323,602,796	12,429,802
Maine	95	9,953,975	2,648,854	11,646,066	486,245
	96	10,020,998	2,397,516	11,868,558	446,587
	97	10,407,208	2,397,622	12,236,373	434,794
Maryland	95	21,403,266	11,030,403	14,045,505	1,750,796
	96	22,043,452	7,876,025	14,242,907	1,556,834
	97	22,878,192	8,066,310	15,163,584	1,459,808
Massachusetts	95	25,790,495	27,033,195	7,836,421	8,373,492
	96	85,695,897	24,016,994	5,082,520	6,327,659
	97	25,058,737	24,369,992	5,127,726	5,316,126
Michigan	95	174,537,226	109,004,557	109,196,799	65,483,514
	96	147,307,927	131,018,624	104,005,874	72,117,131
	97	150,126,707	117,911,661	109,496,141	73,139,811
Minnesota	95	151,128,713	20,932,924	25,578,864	2,725,703
	96	159,239,384	19,389,401	25,745,756	2,664,139
	97	167,519,986	19,601,709	25,725,876	2,649,479
Mississippi	95	252,652,882	33,202,379	33,382,226	3,389,280
	96	243,981,953	34,194,594	76,485,779	3,323,954
	97	247,617,671	34,177,326	81,189,622	3,361,272
Missouri	95	1,185,630,783	58,020,116	94,009,432	26,906,658
	96	1,191,186,715	60,777,900	87,273,140	15,801,286
	97	1,200,156,726	64,767,820	88,143,740	15,896,761



Table 4-30, Cont.

State	Year	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/Disposed of Pounds	Total Production-related Waste Pounds	Non-Production related Waste Pounds
Idaho	95	17,524,155	528,139	7,353,386	26,479,294	122,904
	96	18,297,939	548,402	7,304,511	27,482,129	
	97	17,788,015	537,968	7,596,624	27,634,586	
Illinois	95	138,468,529	29,348,503	107,291,220	1,177,244,670	1,037,269
	96	127,316,217	21,966,031	102,677,654	1,172,775,402	
	97	128,644,157	21,200,901	98,712,222	1,174,858,937	
Indiana	95	154,884,925	28,774,337	102,929,904	934,985,229	1,189,340
	96	166,340,623	29,217,770	100,850,776	875,388,242	
	97	166,179,053	28,723,654	97,563,047	892,354,796	
Iowa	95	67,122,271	10,890,407	36,220,808	3,168,205,781	145,001
	96	71,828,710	11,003,782	35,687,346	2,919,383,518	
	97	78,314,999	11,702,784	32,787,456	2,967,055,220	
Kansas	95	43,146,445	3,329,026	29,377,094	1,465,346,898	218,675
	96	32,727,713	4,779,932	26,499,918	1,294,364,488	
	97	22,598,404	3,183,505	23,570,556	1,186,612,938	
Kentucky	95	98,027,398	11,571,949	45,191,926	554,142,897	335,763
	96	101,724,818	11,234,792	42,832,936	570,591,901	
	97	102,617,083	12,898,549	41,687,020	579,625,577	
Louisiana	95	832,258,657	9,774,107	173,691,236	2,113,201,991	1,215,668
	96	903,936,940	9,319,999	196,335,173	2,219,587,657	
	97	827,317,784	9,029,101	182,690,573	2,096,392,859	
Maine	95	83,507,206	582,880	11,580,404	120,405,630	750
	96	84,202,729	500,300	10,447,267	119,883,955	
	97	85,578,726	482,238	10,373,535	121,910,496	
Maryland	95	28,299,310	8,500,624	14,466,038	99,495,942	11,118
	96	29,813,356	4,397,013	13,254,069	93,183,656	
	97	29,237,829	4,269,738	12,956,764	94,032,225	
Massachusetts	95	28,946,312	12,035,944	9,329,859	119,345,718	64,771
	96	28,552,263	10,625,895	7,725,959	168,027,187	
	97	28,155,585	10,401,352	7,171,108	105,600,626	
Michigan	95	140,752,339	31,159,024	109,289,894	739,423,353	116,919
	96	112,866,580	31,139,520	106,044,696	704,500,352	
	97	112,478,094	31,605,220	105,211,579	699,969,213	
Minnesota	95	34,617,836	9,402,478	24,090,330	268,476,848	9,181
	96	32,735,125	9,401,392	23,105,814	272,281,011	
	97	33,007,554	9,439,082	22,195,624	280,139,310	
Mississippi	95	103,713,819	2,787,486	56,664,184	485,792,256	15,455
	96	106,961,162	2,621,693	55,439,888	523,009,023	
	97	108,549,192	1,914,360	53,336,589	530,146,032	
Missouri	95	77,171,153	13,329,863	52,133,240	1,507,201,245	318,962
	96	78,373,172	14,297,029	48,943,714	1,496,652,956	
	97	77,592,850	16,131,312	47,219,578	1,509,908,787	

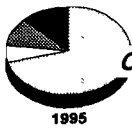


Table 4-30. Actual and Projected Quantities of TRI Chemicals in Waste, by State, 1995-1997 (Alphabetically Ordered), Continued.

State	Year	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
Montana	95	48,850,536	138,744	17,286,366	14,948
	96	42,301,115	2,260,378	17,322,285	12,156
	97	42,288,340	2,290,078	17,317,120	10,156
Nebraska	95	9,917,435	31,778,763	2,273,732	605,034
	96	9,918,265	26,895,770	1,796,200	622,243
	97	9,547,529	24,490,183	1,324,310	604,647
Nevada	95	2,451,905	2,016,247	0	7,036
	96	2,522,631	2,090,187	0	6,926
	97	2,522,433	2,083,187	0	6,926
New Hampshire	95	17,598,161	9,934,066	1,399,500	320,314
	96	19,033,850	11,339,886	1,780,500	278,581
	97	18,994,685	11,667,036	1,791,500	203,839
New Jersey	95	56,333,008	47,167,496	188,596,372	31,147,274
	96	51,174,467	48,565,523	187,010,285	30,430,110
	97	54,548,087	44,629,595	186,107,671	30,446,732
New Mexico	95	2,143,006	879,206	48,000,000	302,234
	96	2,142,571	936,332	48,000,000	329,357
	97	2,133,471	1,328,418	48,000,000	133,793
New York	95	178,862,253	76,665,695	24,342,087	10,886,843
	96	171,913,902	65,498,025	24,316,678	8,790,040
	97	161,933,215	66,189,870	24,914,757	8,122,970
North Carolina	95	1,762,885,323	101,884,033	49,615,599	11,065,797
	96	1,963,392,716	102,971,292	50,549,097	21,347,450
	97	1,972,364,316	92,532,079	58,985,206	20,919,412
North Dakota	95	450,060,076	1,134,694	0	26,327
	96	340,053,507	1,273,487	0	23,409
	97	53,645	1,124,487	0	17,948
Ohio	95	359,595,141	218,236,561	91,109,009	38,090,470
	96	358,492,323	225,587,052	94,082,497	40,753,029
	97	378,805,848	225,824,108	98,282,511	39,992,504
Oklahoma	95	51,882,018	20,090,390	95,675,680	3,038,261
	96	53,155,230	20,429,435	97,273,248	2,668,792
	97	54,402,648	21,739,984	100,273,248	2,607,990
Oregon	95	35,998,489	21,557,967	16,680,064	1,155,116
	96	36,500,899	20,052,034	16,944,364	1,195,570
	97	36,532,537	20,755,536	16,998,884	1,102,799
Pennsylvania	95	421,217,096	151,490,766	136,484,453	16,656,605
	96	407,881,679	149,707,390	149,331,347	15,862,929
	97	410,913,676	151,769,508	151,638,321	16,120,394
Puerto Rico	95	30,367,912	11,639,171	606,414	10,220,622
	96	28,750,052	11,510,763	164,227	8,582,839
	97	30,050,311	11,486,664	164,227	7,810,801



Table 4-30, Cont.

State	Year	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production- related Waste Pounds	Non-Production related Waste Pounds
Montana	95	12,045,474	52,188	43,910,282	122,298,538	3,949
	96	11,570,681	55,811	43,524,360	117,046,786	
	97	11,096,584	41,588	43,389,746	116,433,612	
Nebraska	95	7,655,947	950,577	14,031,162	67,212,650	24,895
	96	7,467,858	933,605	12,678,672	60,312,613	
	97	7,633,206	996,746	11,772,534	56,369,155	
Nevada	95	7,273,562	12,255	3,637,031	15,398,036	1,934
	96	7,476,045	12,832	3,798,672	15,907,293	
	97	7,717,645	13,134	3,874,266	16,217,591	
New Hampshire	95	10,378,504	524,206	2,691,212	42,845,963	10,539
	96	10,828,230	631,289	2,299,313	46,191,649	
	97	10,901,395	587,702	2,082,736	46,228,893	
New Jersey	95	166,361,517	28,682,275	18,821,867	537,109,809	669,012
	96	143,538,834	22,014,073	15,979,169	498,712,461	
	97	141,706,870	21,247,185	15,559,537	494,245,677	
New Mexico	95	3,197,721	380,283	18,779,352	73,681,802	84
	96	3,384,386	405,918	17,822,116	73,020,680	
	97	3,711,753	462,631	18,667,265	74,437,331	
New York	95	112,496,174	13,910,823	42,340,011	459,503,886	75,805
	96	115,750,629	12,970,552	38,157,342	437,397,168	
	97	116,004,404	12,073,504	34,000,464	423,239,184	
North Carolina	95	371,757,726	14,022,242	89,849,438	2,401,080,158	658,723
	96	357,358,746	6,357,987	90,509,253	2,592,486,541	
	97	359,400,514	7,412,200	87,327,077	2,598,940,804	
North Dakota	95	2,347,092	660,027	2,552,509	456,780,725	45
	96	2,341,477	604,654	3,102,620	347,399,154	
	97	2,343,580	594,734	3,032,169	7,166,563	
Ohio	95	165,254,310	33,177,243	149,180,877	1,054,643,611	350,062
	96	169,580,911	29,837,533	150,354,615	1,068,687,960	
	97	176,179,137	27,188,920	149,425,409	1,095,698,437	
Oklahoma	95	10,685,050	1,158,430	28,245,731	210,775,560	455,394
	96	10,742,531	1,193,757	25,849,787	211,312,780	
	97	11,119,848	1,184,842	22,003,157	213,331,717	
Oregon	95	48,831,677	13,319,562	22,596,855	160,139,730	36,438
	96	50,524,356	13,967,837	21,086,351	160,271,411	
	97	53,822,840	14,159,722	21,760,894	165,133,212	
Pennsylvania	95	300,348,400	26,755,329	94,182,552	1,147,135,201	15,628,468
	96	308,148,109	25,795,630	92,106,504	1,148,833,588	
	97	325,137,346	25,497,479	88,291,083	1,169,367,807	
Puerto Rico	95	15,769,943	8,361,881	10,294,278	87,260,221	18,813
	96	18,512,515	10,636,341	9,544,777	87,701,514	
	97	17,186,667	10,428,406	9,404,880	86,531,956	



Chapter 4 — 1995 TRI Releases and Transfers

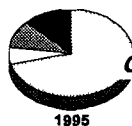
Table 4-30. Actual and Projected Quantities of TRI Chemicals in Waste, by State, 1995-1997 (Alphabetically Ordered), Continued.

State	Year	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
Rhode Island	95	17,488,692	14,167,417	237,930	875,650
	96	17,886,281	14,279,170	217,075	879,485
	97	17,140,355	16,590,190	205,350	505,155
South Carolina	95	277,710,357	118,057,036	50,562,712	11,190,630
	96	327,440,658	130,846,428	56,043,638	8,041,777
	97	484,405,152	130,183,791	57,820,294	7,624,768
South Dakota	95	187,866	688,050	1,065,000	150,862
	96	179,092	692,662	1,121,000	165,374
	97	169,046	710,855	1,190,000	172,318
Tennessee	95	615,850,037	58,760,021	62,560,066	5,954,829
	96	671,643,750	57,077,105	58,473,293	4,599,973
	97	687,256,086	56,587,207	58,156,187	4,760,097
Texas	95	806,889,419	140,833,095	796,823,194	91,133,469
	96	813,885,629	145,790,623	935,233,967	91,262,475
	97	832,119,331	144,818,701	839,019,649	88,774,709
Utah	95	13,628,924	5,855,641	4,382,092	85,889
	96	10,876,016	6,930,887	77,080	84,237
	97	11,067,167	6,884,310	80,040	81,454
Vermont	95	1,073,467	1,695,082	12,000	49,711
	96	701,525	1,607,600	13,000	43,700
	97	755,643	473,100	13,000	44,000
Virgin Islands	95	772,245	123,782	0	51,700
	96	772,245	123,782	0	51,700
	97	691,945	123,782	0	51,700
Virginia	95	791,693,184	34,815,096	40,504,864	7,783,895
	96	701,176,273	25,119,374	38,570,093	7,335,580
	97	720,294,946	25,975,587	39,627,396	6,881,675
Washington	95	81,968,120	13,995,119	12,360,436	652,519
	96	84,969,082	14,214,521	12,656,744	571,393
	97	88,492,559	14,691,251	12,923,997	557,556
West Virginia	95	145,567,529	35,440,409	10,918,663	11,180,557
	96	142,415,814	35,213,176	15,066,654	11,332,285
	97	154,742,646	36,123,728	11,258,214	12,960,323
Wisconsin	95	64,125,044	54,693,186	9,851,278	19,793,616
	96	66,097,874	52,373,300	10,063,428	19,782,550
	97	64,194,500	53,220,715	10,239,780	19,922,945
Wyoming	95	1,832,295	68,369	112,010	1,612
	96	1,828,502	60,536	110,010	1,612
	97	1,828,502	61,061	110,010	1,612
Total	95	19,048,561,729	2,284,063,998	2,902,970,808	500,682,639
	96	18,929,367,580	2,301,880,622	2,945,189,012	485,020,388
	97	18,891,805,311	2,322,894,555	2,904,081,431	480,503,117



Table 4-30, Cont.

State	Year	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production- related Waste Pounds	Non-Production related Waste Pounds
Rhode Island	95	7,894,826	1,163,534	2,987,999	44,816,048	5,749
	96	8,413,832	924,445	2,577,293	45,177,581	
	97	6,419,438	839,625	2,410,178	44,110,291	
South Carolina	95	122,309,496	10,716,198	57,377,468	647,923,897	541,322
	96	122,893,135	9,918,245	55,528,520	710,712,401	
	97	127,734,111	10,360,688	54,533,509	872,662,313	
South Dakota	95	32,892,197	616,181	1,945,499	37,545,655	481
	96	33,114,727	512,822	1,590,964	37,376,641	
	97	33,189,765	536,106	1,541,418	37,509,508	
Tennessee	95	131,483,728	12,275,461	118,697,508	1,005,581,650	57,124
	96	124,559,998	9,944,695	118,831,600	1,045,130,414	
	97	126,644,287	9,871,075	119,589,043	1,062,863,982	
Texas	95	1,452,124,919	94,944,416	297,971,994	3,680,720,506	3,036,486
	96	1,420,553,144	85,557,487	316,689,642	3,808,972,967	
	97	1,450,006,357	80,856,082	302,112,898	3,737,707,727	
Utah	95	152,200,279	1,034,251	76,624,279	253,811,355	69,374
	96	157,209,820	4,288,978	80,981,204	260,448,222	
	97	156,886,778	6,894,272	82,202,212	264,096,233	
Vermont	95	758,680	301,772	557,894	4,448,606	5,468
	96	751,732	267,809	380,621	3,765,987	
	97	769,193	237,218	320,701	2,612,855	
Virgin Islands	95	10,014,402	192,130	1,431,084	12,585,343	5,709
	96	10,014,402	192,130	1,431,084	12,585,343	
	97	10,014,402	192,130	1,431,084	12,505,043	
Virginia	95	347,312,644	19,884,169	54,815,741	1,296,809,593	89,915
	96	341,399,094	19,579,922	52,795,427	1,185,975,763	
	97	349,047,075	19,390,022	52,646,693	1,213,863,394	
Washington	95	130,649,905	3,217,792	27,743,756	270,587,647	20,794
	96	133,920,092	3,373,902	27,912,455	277,618,189	
	97	125,401,522	3,681,701	27,335,715	273,084,301	
West Virginia	95	176,295,134	6,191,135	30,540,498	416,133,925	238,234
	96	179,330,213	4,428,055	29,369,106	417,155,303	
	97	182,052,848	4,931,379	28,718,335	430,787,473	
Wisconsin	95	118,196,846	14,360,661	39,627,784	320,648,415	41,614
	96	126,888,583	13,446,426	38,271,761	326,923,922	
	97	134,425,239	13,485,632	38,280,499	333,769,310	
Wyoming	95	3,949,998	6,505	11,005,221	16,976,010	12,074
	96	3,835,204	6,711	11,284,760	17,127,335	
	97	3,935,204	6,711	11,261,902	17,205,002	
Total	95	7,290,373,550	557,077,046	2,443,328,448	35,027,058,218	32,768,232
	96	7,296,118,653	514,140,515	2,416,171,261	34,887,888,031	
	97	7,320,072,364	511,360,316	2,333,531,761	34,764,248,855	



Chapter 4 — 1995 TRI Releases and Transfers

Table 4-31. Actual and Projected Quantities of TRI Chemicals in Waste, by Industry, 1995-1997.

SIC Code	Industry	Year	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
20	Food	95	10,310,343,782	1,445,915	149,252	260,709
		96	10,064,316,769	1,084,750	171,058	292,033
		97	9,764,383,931	1,123,314	115,087	292,038
21	Tobacco	95	0	100,961	0	1,000
		96	0	93,306	0	0
		97	0	105,306	0	0
22	Textiles	95	10,703,843	782,748	4,925,872	2,094,054
		96	11,947,909	983,543	4,978,830	1,461,358
		97	12,130,546	1,559,183	5,211,279	1,229,833
23	Apparel	95	138,311	24,089	0	106,679
		96	125,670	225	0	117,691
		97	103,670	225	0	103,781
24	Lumber	95	39,488,451	431,604	1,468,254	2,846,236
		96	32,884,302	725,905	1,205,252	2,526,947
		97	25,101,455	813,076	1,083,805	2,607,560
25	Furniture	95	3,352,303	5,433,038	99,077	7,038,586
		96	3,264,163	5,455,908	97,837	6,843,507
		97	3,337,670	5,617,901	97,837	6,808,570
26	Paper	95	111,165,182	5,325,267	194,192,194	8,261,763
		96	110,617,641	2,031,198	191,118,322	8,415,893
		97	110,583,368	2,076,465	192,083,634	8,491,591
27	Printing	95	187,545,569	5,797,029	277,629	3,692,333
		96	187,175,826	5,407,588	276,000	3,450,800
		97	183,344,214	5,532,311	245,000	3,263,396
28	Chemicals	95	4,390,432,219	248,012,747	1,292,665,587	392,674,243
		96	4,630,577,226	274,382,379	1,444,843,362	384,507,749
		97	4,951,961,311	260,674,806	1,356,802,030	378,605,556
29	Petroleum	95	123,617,685	22,894,994	616,946,164	528,227
		96	123,274,556	24,983,294	498,803,871	469,843
		97	123,527,418	28,680,004	501,962,300	440,514
30	Plastics	95	311,285,943	18,875,851	22,411,289	7,507,113
		96	172,325,747	16,891,000	22,000,300	6,963,481
		97	63,682,086	19,768,852	22,371,299	6,913,561
31	Leather	95	613,123	451,300	0	272,655
		96	628,552	284,336	0	196,167
		97	577,902	373,336	0	184,696
32	Stone/Clay/Glass	95	132,760,384	3,362,703	592,076,605	3,267,421
		96	142,103,860	2,912,926	603,267,567	3,128,251
		97	143,992,108	3,004,361	638,655,893	3,314,172
33	Primary Metals	95	2,118,611,816	802,062,333	37,646,972	3,909,535
		96	2,193,535,505	819,147,081	38,466,570	3,805,561
		97	2,233,730,105	829,217,997	39,121,591	3,712,853
34	Fabricated Metals	95	152,178,585	323,149,017	19,362,127	14,521,606
		96	122,214,667	328,350,415	18,245,120	14,694,318
		97	135,794,700	345,074,164	18,660,400	15,874,953



Table 4-31.

SIC Code Industry	Year	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/Disposed of Pounds	Total Production-Related Waste Pounds	Non-Production-Related Waste Pounds
20 Food	95	137,436,324	20,454,246	85,435,759	10,555,525,987	571,958
	96	126,489,624	19,188,905	83,721,075	10,295,264,214	
	97	132,153,305	19,847,037	82,687,318	10,000,602,030	
21 Tobacco	95	347,339	369,795	2,014,726	2,833,821	0
	96	413,720	297,295	2,054,185	2,858,506	
	97	479,720	292,022	2,142,925	3,019,973	
22 Textiles	95	17,142,458	3,548,582	18,405,247	57,602,804	26,639
	96	17,219,643	2,956,315	15,641,397	55,188,995	
	97	16,766,008	2,922,358	14,673,396	54,492,603	
23 Apparel	95	501,405	66,789	1,275,031	2,112,304	23
	96	475,550	9,092	1,323,599	2,051,827	
	97	475,670	7,156	731,143	1,421,645	
24 Lumber	95	5,672,195	635,461	32,784,911	83,327,112	518,365
	96	6,418,999	459,995	31,209,453	75,430,853	
	97	7,527,424	460,647	29,375,798	66,969,765	
25 Furniture	95	1,355,304	817,252	46,408,690	64,504,250	1,366
	96	1,500,138	577,864	44,359,707	62,099,124	
	97	1,547,184	548,103	43,962,127	61,919,392	
26 Paper	95	1,163,188,718	51,045,505	235,549,672	1,768,728,301	12,289
	96	1,235,238,337	51,306,280	232,467,246	1,831,194,917	
	97	1,182,492,905	48,981,842	231,023,888	1,775,733,693	
27 Printing	95	67,054,971	667,250	29,456,243	294,491,024	14,064
	96	75,191,964	529,747	28,268,303	300,300,228	
	97	83,549,228	505,695	27,842,246	304,282,090	
28 Chemicals	95	3,791,428,175	270,439,992	821,911,529	11,207,564,492	7,639,654
	96	3,722,498,129	238,889,122	842,672,198	11,538,370,165	
	97	3,761,045,237	236,993,001	788,317,884	11,734,399,825	
29 Petroleum	95	345,094,282	6,534,173	63,564,560	1,179,180,085	376,067
	96	338,905,819	5,915,696	63,220,324	1,055,573,403	
	97	339,486,175	6,149,448	61,848,614	1,062,094,473	
30 Plastics	95	47,306,901	6,480,247	122,472,420	536,339,764	329,327
	96	40,344,268	5,409,613	110,595,277	374,529,686	
	97	33,079,893	5,713,557	106,731,169	258,260,417	
31 Leather	95	3,828,717	1,005,340	4,660,969	10,832,104	1
	96	3,513,272	1,037,986	4,569,356	10,229,669	
	97	3,509,920	1,013,270	4,379,098	10,038,222	
32 Stone/Clay/Glass	95	90,806,397	2,525,058	42,631,456	867,430,024	454,441
	96	102,977,766	1,844,157	41,035,405	897,269,932	
	97	103,220,565	2,011,099	40,040,235	934,238,433	
33 Primary Metals	95	576,290,990	82,012,545	460,924,907	4,081,459,098	17,245,332
	96	589,341,953	74,947,175	474,824,501	4,194,068,346	
	97	621,776,051	79,332,137	476,851,707	4,283,742,441	
34 Fabricated Metals	95	333,382,069	16,685,177	94,159,978	953,438,559	199,124
	96	333,134,507	14,419,295	83,462,424	914,520,746	
	97	335,111,393	14,047,095	79,320,778	943,883,483	

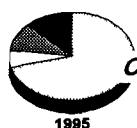


Table 4-31. Actual and Projected Quantities of TRI Chemicals in Waste, by Industry, 1995-1997, Continued.

SIC Code Industry	Year	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
35 Machinery	95	60,716,249	62,361,529	187,816	3,235,030
	96	53,686,461	62,560,571	190,954	2,842,668
	97	43,378,055	63,768,775	190,471	2,658,362
36 Electrical Equip.	95	96,564,364	398,009,396	10,495,234	11,053,230
	96	98,699,451	373,588,117	8,872,886	10,121,249
	97	106,814,378	374,422,710	9,327,066	10,024,365
37 Transportation Equip.	95	48,380,964	164,563,561	2,268,436	15,447,722
	96	31,262,473	164,567,632	2,312,180	14,843,458
	97	30,066,955	164,952,356	3,038,349	15,308,724
38 Measure./Photo.	95	4,850,463	14,505,486	906,685	2,330,011
	96	4,675,647	13,891,698	952,800	2,016,001
	97	4,796,274	12,756,732	952,800	2,294,998
39 Miscellaneous	95	13,496,216	16,472,556	2,598,693	2,645,881
	96	11,178,842	14,351,098	2,794,350	2,070,262
	97	11,167,738	13,898,128	3,105,435	2,080,988
Multiple codes 20-39 ³⁵	95	916,179,773	186,724,032	71,143,838	17,542,664
	96	932,824,825	187,809,762	70,143,673	14,853,069
	97	941,271,059	187,717,514	70,981,115	15,221,416
No codes 20-39 ³⁶	95	16,136,504	3,277,842	33,149,084	1,445,941
	96	2,047,488	2,377,890	36,448,080	1,400,082
	97	2,060,368	1,757,039	40,076,040	1,071,190
Total	95	19,048,561,729	2,284,063,998	2,902,970,808	500,682,639
	96	18,929,367,580	2,301,880,622	2,945,189,012	485,020,388
	97	18,891,805,311	2,322,894,555	2,904,081,431	480,503,117

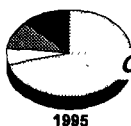


Table 4-31, Cont.

SIC Code Industry	Year	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production-related Waste Pounds	Non-Production related Waste Pounds
35 Machinery	95	8,540,842	4,517,141	25,339,515	164,898,122	369,949
	96	8,304,041	4,082,579	22,909,667	154,576,941	
	97	8,118,055	4,092,166	20,610,939	142,816,823	
36 Electrical Equip.	95	103,132,573	17,531,735	39,344,023	676,130,555	170,508
	96	106,029,966	18,485,401	34,347,599	650,144,669	
	97	110,268,436	19,177,889	32,195,639	662,230,483	
37 Transportation Equip.	95	31,671,326	16,865,691	117,877,222	397,074,922	238,602
	96	30,894,094	15,984,816	108,408,439	368,273,092	
	97	30,013,859	15,381,777	105,610,803	364,372,823	
38 Measure./Photo.	95	36,720,145	4,442,704	17,637,311	81,392,805	4,736
	96	37,227,296	3,562,885	14,540,375	76,866,702	
	97	37,019,559	3,463,885	12,689,242	73,973,490	
39 Miscellaneous	95	6,042,516	1,529,647	14,069,004	56,854,513	22,517
	96	5,743,609	1,462,764	12,452,942	50,053,867	
	97	5,593,210	1,340,367	11,124,317	48,310,183	
Multiple codes 20-39 ³⁵	95	494,569,616	47,097,988	156,289,009	1,889,546,920	4,529,054
	96	505,493,725	51,437,040	155,311,232	1,917,873,326	
	97	497,888,503	47,953,612	153,285,321	1,914,318,540	
No codes 20-39 ³⁶	95	28,860,287	1,804,728	11,116,266	95,790,652	44,216
	96	8,762,233	1,336,493	8,776,557	61,148,823	
	97	8,950,064	1,126,153	8,087,174	63,128,028	
Total	95	7,290,373,550	557,077,046	2,443,328,448	35,027,058,218	32,768,232
	96	7,296,118,653	514,140,515	2,416,171,261	34,887,888,031	
	97	7,320,072,364	511,360,316	2,333,531,761	34,764,248,855	

³⁵ Facilities/forms that reported more than one 2-digit SIC code within the range of 20 to 39 [e.g., paper (26) and chemicals (28)].

³⁶ Facilities/forms that did not report an SIC code and facilities that reported SIC codes outside the 20-to-39 range.



Chapter 4 — 1995 TRI Releases and Transfers

Table 4-32. Actual and Projected Quantities of TRI Chemicals in Waste, by Federal Agency, 1995-1997.

Agency	Year	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
Dept. of Agriculture	95	0	0	0	0
	96	0	0	0	0
	97	0	0	0	0
Dept. of Defense	95	34,709,104	3,588,132	84	433,410
	96	35,922,064	3,046,102	80	389,928
	97	54,148,407	2,840,093	40	375,892
Dept. of Energy	95	307,661	93,500	0	0
	96	474,650	60,600	0	0
	97	515,650	40,200	0	0
Dept. of Health and Human Services	95	0	54,509	0	0
	96	0	122,000	0	0
	97	0	40,000	0	0
Dept. of Interior	95	0	26,000	0	0
	96	0	0	0	0
	97	0	0	0	0
Dept. of Justice	95	0	0	0	0
	96	0	0	0	0
	97	0	0	0	0
Dept. of Transportation	95	0	0	0	1,517
	96	0	0	0	1,720
	97	0	0	0	1,880
Dept. of Treasury	95	0	481,615	0	0
	96	0	438,515	0	0
	97	0	430,941	0	0
Dept. of Veterans Affairs	95	0	0	0	0
	96	0	0	0	0
	97	0	0	0	0
Environmental Protection Agency	95	0	0	0	0
	96	0	0	0	0
	97	0	0	0	0
National Aeronautics and Space Administration	95	626,351	32,064	0	19,413
	96	532,408	9,825	0	17,715
	97	265,979	3,895	0	16,048
Tennessee Valley Authority	95	0	0	0	0
	96	0	0	0	0
	97	0	0	0	0
U.S. Enrichment Corporation	95	0	0	0	0
	96	0	0	0	0
	97	0	0	0	0
Total	95	35,643,116	4,275,820	84	454,340
	96	36,929,122	3,677,042	80	409,363
	97	54,930,036	3,355,129	40	393,820



Table 4-32, Cont.

Agency	Year	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production-Related Waste Pounds	Non-Production-Related Waste Pounds
Dept. of Agriculture	95	0	0	475,015	475,015	2
	96	0	0	596,720	596,720	
	97	0	0	568,000	568,000	
Dept. of Defense	95	12,490,272	908,835	6,200,499	58,330,336	142,637
	96	13,497,064	598,048	4,902,059	58,355,345	
	97	18,338,580	537,895	4,405,304	80,646,211	
Dept. of Energy	95	382,802	6,661	579,338	1,369,962	35,603
	96	365,066	5,319	615,026	1,520,661	
	97	501,250	4,319	804,625	1,866,044	
Dept. of Health and Human Services	95	44,668	603	0	99,780	0
	96	40,000	300	0	162,300	
	97	30,000	150	0	70,150	
Dept. of Interior	95	0	26,000	4,832	56,832	0
	96	0	0	4,832	4,832	
	97	0	0	4,832	4,832	
Dept. of Justice	95	0	0	32,510	32,510	0
	96	0	0	6,500	6,500	
	97	0	0	0	0	
Dept. of Transportation	95	0	4,826	16,499	22,842	0
	96	0	5,310	18,280	25,310	
	97	0	5,850	21,090	28,820	
Dept. of Treasury	95	2,330	27,001	37,404	548,350	0
	96	0	28,600	19,357	486,472	
	97	0	28,600	19,344	478,885	
Dept. of Veterans Affairs	95	0	0	91,000	91,000	0
	96	0	0	160,000	160,000	
	97	0	0	160,000	160,000	
Environmental Protection Agency	95	0	0	11	11	0
	96	0	0	18	18	
	97	0	0	16	16	
National Aeronautics and Space Administration	95	70	12,071	488,042	1,178,011	5
	96	220	3,839	443,001	1,007,008	
	97	255	3,677	357,845	647,699	
Tennessee Valley Authority	95	62,576	0	13,620	76,196	0
	96	52,500	0	2,000	54,500	
	97	52,500	0	2,000	54,500	
U.S. Enrichment Corporation	95	8,700	0	671,760	680,460	0
	96	5,500	0	621,203	626,703	
	97	5,100	0	560,703	565,803	
Total	95	12,991,418	985,997	8,610,530	62,961,305	178,247
	96	13,960,350	641,416	7,388,996	63,006,369	
	97	18,927,685	580,491	6,903,759	85,090,960	



Chapter 4 — 1995 TRI Releases and Transfers

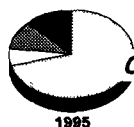
Table 4-33. Releases and Transfers of All TRI Chemicals, 1995 (Alphabetically Ordered).

CAS Number	Chemical	Total Forms Number	Form As Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
71751-41-2 (M)	Abamectin	2	0	0	0	16	0	0	16
30560-19-1 (M)	Acephate	4	0	505	1,745	0	0	0	2,250
75-07-0	Acetaldehyde	230	4	1,609,764	11,813,290	225,846	605,885	155,355	14,410,140
60-35-5	Acetamide	3	1	7	1	0	920,000	0	920,008
75-05-8	Acetonitrile	86	0	698,612	323,270	7,474	27,837,181	12	28,866,549
98-86-2	Acetophenone	38	6	144,676	60,968	971	629,201	3,369	839,185
62476-59-9 (M)	Acifluorfen, sodium salt	4	1	58	2	5	0	5	70
107-02-8	Acrolein	20	0	10,200	61,099	4	83,465	0	154,768
79-06-1	Acrylamide	80	17	6,922	12,155	1,929	6,120,154	235	6,141,395
79-10-7	Acrylic acid	187	24	273,322	253,822	2,648	7,840,000	47	8,369,839
107-13-1	Acrylonitrile	105	7	270,587	997,712	9,539	5,193,028	618	6,471,484
15972-60-8 (M)	Alachlor	3	0	750	6	280	0	0	1,036
116-06-3 (M)	Aldicarb	2	0	3,323	154	0	0	6	3,483
28057-48-9 (M)	d-trans-Allethrin	1	1	0	0	0	0	0	0
107-18-6	Allyl alcohol	30	1	39,604	19,032	6,419	298,801	0	363,856
107-05-1	Allyl chloride	20	2	22,416	29,630	95	0	41	52,182
7429-90-5	Aluminum (fume or dust)	311	27	253,115	1,722,557	36,693	250	1,872,233	3,884,848
1344-28-1	Aluminum oxide (fibrous oxide)	57	2	98,267	23,219	2,805	0	660,700	784,991
20859-73-8 (M)	Aluminum phosphide	1	1	0	0	0	0	0	0
834-12-8 (M)	Ametryn	5	0	250	586	83	0	5	924
60-09-3	4-Aminoazobenzene	1	0	0	0	0	64	0	64
92-67-1	4-Aminobiphenyl	1	0	0	0	0	2	0	2
7664-41-7	Ammonia	2,849	212	36,740,310	120,018,952	9,994,144	23,205,946	5,137,094	195,096,446
62-53-3	Aniline	66	10	115,917	85,586	8,943	1,222,381	4,193	1,437,020
90-04-0	o-Anisidine	7	3	966	65	74	0	0	1,105
104-94-9	p-Anisidine	2	1	0	5	0	0	0	5
120-12-7	Anthracene	69	4	26,450	52,871	4,942	0	1,642	85,905
7440-36-0	Antimony	129	10	4,892	24,676	6,592	0	18,786	54,946
—	Antimony compounds	532	58	39,125	63,620	29,346	11,332	1,167,331	1,310,754
7440-38-2	Arsenic	92	6	2,444	4,408	299	0	27,351	34,502
—	Arsenic compounds	297	106	69,007	55,814	4,936	55,000	1,325,102	1,509,859
1332-21-4	Asbestos (friable)	72	4	1,055	2,590	1	0	131,404	135,050
1912-24-9 (M)	Atrazine	20	3	3,468	19,221	1,656	0	637,036	661,381
7440-39-3	Barium	73	16	35,972	55,114	6,279	0	219,823	317,188
—	Barium compounds	552	96	59,327	96,345	53,617	0	314,550	523,839
22781-23-3 (M)	Bendiocarb	2	1	5	550	0	0	0	555
1861-40-1 (M)	Benfluralin	8	0	777	1,950	0	0	0	2,727
17804-35-2 (M)	Benomyl	2	1	0	0	0	0	0	0
98-87-3	Benzal chloride	4	1	1,095	17	0	0	0	1,112
71-43-2	Benzene	465	22	4,039,259	5,239,734	21,300	275,242	16,468	9,592,003
98-07-7	Benzoic trichloride	7	2	6,446	50	0	0	0	6,496
98-88-4	Benzoyl chloride	22	4	14,882	1,867	0	0	0	16,749
94-36-0	Benzoyl peroxide	64	20	351	1,692	5	0	10,345	12,393
100-44-7	Benzyl chloride	45	8	12,695	6,956	40	0	247	19,938
7440-41-7	Beryllium	9	0	3	832	26	0	22,189	23,050
—	Beryllium compounds	7	0	0	360	2	0	23,000	23,362
82657-04-3 (M)	Bifenthrin	3	2	5	5	0	0	5	15
92-52-4	Biphenyl	131	13	493,901	237,841	6,242	30,337	71,864	840,185
111-91-1	Bis(2-chloroethoxy)methane	1	0	12,260	250	0	250	0	12,760
111-44-4	Bis(2-chloroethyl) ether	11	3	360	185	3	0	0	548
542-88-1	Bis(chloromethyl) ether	2	1	0	0	0	0	0	0
108-60-1	Bis(2-chloro-1-methylethyl) ether	2	0	2,710	3,420	0	0	0	6,130
56-35-9 (M)	Bis(tributyltin) oxide	2	0	10	5	250	0	0	265
10294-34-5 (M)	Boron trichloride	4	3	0	5	0	0	0	5
7637-07-2 (M)	Boron trifluoride	23	5	6,032	12,537	0	0	0	18,569
314-40-9 (M)	Bromacil	5	2	250	250	27,897	0	0	28,397
7726-95-6 (M)	Bromine	42	5	26,983	77,837	880	7	10	105,717
35691-65-7 (M)	1-Bromo-1-(bromomethyl)-1,3- propanedicarbonitrile	1	0	0	0	0	0	0	0
353-59-3	Bromochlorodifluoromethane (Halon 1211)	4	1	4,810	1	0	0	0	4,811



Table 4-33.

Chemical	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ^(B) Pounds	Total Transfers Pounds
(N) Abamectin	0	0	5,582	0	0	0	5,582
(N) Acephate	0	0	14,450	0	1,500	0	15,950
Acetaldehyde	31,823	234,670	1,244,782	487,176	1,099	0	1,999,550
Acetamide	0	0	323	0	0	0	323
Acetonitrile	2,071,155	4,661,165	4,228,558	925,609	10,892	0	11,897,379
Acetophenone	9,367	300,270	9,465	48,120	19,427	0	386,649
(N) Acifluorfen, sodium salt	0	0	0	1,272	0	0	1,272
Acrolein	0	43,323	11,361	0	0	0	54,684
Acrylamide	0	43,729	39,747	176,069	3,083	0	262,628
Acrylic acid	34,867	5,194,184	426,232	53,283	35,421	0	5,743,987
Acrylonitrile	69,716	716,604	939,112	143,393	4,917	0	1,873,742
(N) Alachlor	0	5,481	244,900	0	2,940	0	253,321
(N) Aldicarb	0	0	20,011	0	0	0	20,011
(N) d-trans-Allethrin	0	0	0	0	0	0	0
Allyl alcohol	0	363,381	207,290	215,228	11,296	0	797,195
Allyl chloride	0	1,506	413,027	11	13	0	414,557
Aluminum (fume or dust)	17,963,683	164,914	304,717	11,484	6,143,170	0	24,587,968
Aluminum oxide (fibrous oxide)	32,507	11,353	84,619	1,446	2,877,118	0	3,007,043
(N) Aluminum phosphide	0	0	0	0	0	0	0
(N) Ametryn	0	0	12,500	0	250	0	12,750
4-Aminoazobenzene	0	0	0	0	0	0	0
4-Aminobiphenyl	0	0	0	0	0	0	0
Ammonia	12,016,205	101,507	2,477,133	17,571,572	1,510,861	2,198	33,679,476
Aniline	0	259,000	319,577	986,966	21,546	0	1,587,089
o-Anisidine	0	0	0	5,100	3	0	5,103
p-Anisidine	0	0	0	5	0	0	5
Anthracene	16,937	78,942	3,467	654	48,140	0	148,140
Antimony	5,588,224	1,730	71,999	27,386	78,869	5	5,768,213
Antimony compounds	3,269,017	49,141	817,684	85,744	3,048,957	10,830	7,281,373
Arsenic	189,754	2,650	46,620	68	43,208	0	282,300
Arsenic compounds	423,946	752	1,295,253	248	1,345,006	0	3,065,205
Asbestos (friable)	0	0	5	752	4,101,565	0	4,102,322
(N) Atrazine	0	0	126,758	294	101,631	0	228,683
Barium	160,557	509	104,111	4,164	313,310	250	582,901
Barium compounds	1,695,448	91,459	1,441,932	381,063	4,475,611	0	8,085,513
(N) Bendiocarb	0	0	0	0	0	0	0
(N) Benfluralin	0	0	250	0	14,000	0	14,250
(N) Benomyl	0	0	122,000	0	0	0	122,000
Benzal chloride	0	260,000	0	5	0	0	260,005
Benzene	420,044	1,579,514	1,780,153	217,948	71,381	0	4,069,040
Benzoic trichloride	0	0	3,018	5	250	0	3,273
Benzoyl chloride	0	80	592,289	5	1,460	0	593,834
Benzoyl peroxide	10,800	2,671	11,884	32,842	4,760	0	62,957
Benzyl chloride	0	430,300	9,565	1,889	3,870	0	445,624
Beryllium	9,618	0	423	0	6,943	0	16,984
Beryllium compounds	24,005	0	990	1	1,600	0	26,596
(N) Bifenthrin	0	0	5	0	0	0	5
Biphenyl	161,181	346,055	205,929	402,012	37,988	250	1,153,415
Bis(2-chloroethoxy)methane	0	0	0	0	0	0	0
Bis(2-chloroethyl) ether	146,118	203,775	86,019	2,874	0	0	438,786
Bis(chloromethyl) ether	0	0	0	0	0	0	0
Bis(2-chloro-1-methylethyl) ether	0	0	0	0	0	0	0
(N) Bis(tributyltin) oxide	39,043	0	0	0	8,455	0	47,498
(N) Boron trichloride	0	0	0	0	0	0	0
(N) Boron trifluoride	0	0	270	5	929	0	1,204
(N) Bromacil	0	0	27,799	250	0	0	28,049
(N) Bromine	0	0	283,212	2,641,809	259,882	0	3,184,903
(N) 1-Bromo-1-(bromomethyl)-1,3- propanedicarbonitrile	0	0	10,957	0	0	0	10,957
Bromochlorodifluoromethane (Halon 1211)	0	0	0	0	0	0	0



Chapter 4 — 1995 TRI Releases and Transfers

1995

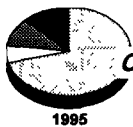
Table 4-33. Releases and Transfers of All TRI Chemicals, 1995 (Alphabetically Ordered), Continued.

CAS Number	Chemical	Total Forms Number	Form As Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
74-83-9	Bromomethane	42	1	386,154	2,215,580	14	3,817	0	2,605,565
52-51-7 (M)	2-Bromo-2-nitropropane-1,3-diol	5	5	0	0	0	0	0	0
75-63-8	Bromotrifluoromethane (Halon 1301)	7	1	14,908	18,474	0	0	0	33,382
1689-84-5 (M)	Bromoxynil	1	0	0	6	0	0	0	6
1689-99-2 (M)	Bromoxynil octanoate	4	2	250	250	0	0	0	500
357-57-3 (M)	Brucine	1	0	0	0	0	0	0	0
106-99-0	1,3-Butadiene	184	3	1,437,480	1,476,081	5,398	0	277	2,919,236
141-32-2	Butyl acrylate	164	23	121,697	217,608	2,924	0	559	342,788
71-36-3	n-Butyl alcohol	1,099	39	5,489,259	19,876,273	115,353	2,263,357	4,631	27,748,873
78-92-2	sec-Butyl alcohol	112	6	281,548	616,484	6,782	136,172	2,805	1,043,791
75-65-0	tert-Butyl alcohol	91	5	509,387	154,445	20,183	1,082,071	751	1,766,837
106-88-7	1,2-Butylene oxide	15	1	3,658	7,425	1	0	0	11,084
123-72-8	Butyraldehyde	28	2	120,634	170,806	821	149,783	10	442,054
7440-43-9	Cadmium	45	4	2,480	9,459	458	0	19,938	32,335
—	Cadmium compounds	109	16	7,860	33,253	650	109	49,119	90,991
156-62-7	Calcium cyanamide	5	0	5	5	0	0	0	10
133-06-2	Captan	15	4	520	6,760	5	0	5	7,290
63-25-2	Carbaryl	21	7	1,022	6,802	10	0	1,060	8,894
1563-66-2 (M)	Carbofuran	7	1	2,380	1,807	3,000	0	250	7,437
75-15-0	Carbon disulfide	90	2	3,460,693	80,664,956	39,864	3,985	265	84,169,763
56-23-5	Carbon tetrachloride	69	9	140,135	254,041	717	53,966	0	448,859
463-58-1	Carbonyl sulfide	61	3	86,525	17,496,365	0	0	0	17,582,890
5234-68-4 (M)	Carboxin	3	1	8	0	0	0	0	8
120-80-9	Catechol	126	11	1,328	2,129	24,558	0	3,729	31,744
57-74-9	Chlordane	1	0	823	0	22	0	0	845
115-28-6 (M)	Chlorendic acid	1	0	0	6	0	0	0	6
90982-32-4 (M)	Chlorimuron ethyl	1	0	0	1	0	0	0	1
7782-50-5	Chlorine	1,357	159	1,050,520	64,688,063	428,976	74,124	14,213	66,255,896
10049-04-4	Chlorine dioxide	124	7	16,722	1,271,494	5	0	0	1,288,221
79-11-8	Chloroacetic acid	30	8	5,558	717	11,121	0	0	17,396
4080-31-3 (M)	1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride	4	0	3	90	10	0	521	624
106-47-8 (M)	p-Chloroaniline	4	0	11	256	827	0	0	1,094
108-90-7	Chlorobenzene	60	3	553,142	525,711	1,850	27,405	5	1,108,113
75-68-3	1-Chloro-1,1-difluoroethane (HCFC-142b)	25	1	526,953	6,413,495	771	6	0	6,941,225
75-45-6	Chlorodifluoromethane (HCFC-22)	234	4	4,766,495	7,583,455	2,279	22	1	12,352,252
75-00-3	Chloroethane	53	3	1,221,405	1,536,944	2,320	0	116	2,760,785
67-66-3	Chloroform	159	5	3,326,071	6,907,283	329,330	33,276	4,297	10,600,257
74-87-3	Chloromethane	107	3	755,378	3,327,888	57,425	50,198	35	4,190,924
107-30-2	Chloromethyl methyl ether	3	0	11	2,854	10	0	0	2,875
563-47-3 (M)	3-Chloro-2-methyl-1-propene	2	0	86	19,543	0	0	0	19,629
—	Chlorophenols	9	1	1,960	3,037	30	105,687	0	110,714
76-06-2 (M)	Chloropicrin	15	4	4,656	6,573	0	0	0	11,229
126-99-8	Chloroprene	14	0	109,218	874,670	0	60,000	5,104	1,048,992
354-25-6	1-Chloro-1,1,2,2-tetrafluoroethane (HCFC-124a)	4	0	2,053	502,500	0	0	0	504,553
2837-89-0	2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)	11	1	134,268	617,947	1,255	0	0	753,470
1897-45-6	Chlorothalonil	25	7	4,710	2,730	35	0	750	8,225
75-88-7 (M)	2-Chloro-1,1,1-trifluoroethane (HCFC-133a)	2	0	2,858	32,665	0	0	0	35,523
75-72-9 (M)	Chlorotrifluoromethane (CFC-13)	1	0	250	0	0	0	0	250
5598-13-0 (M)	Chlorpyrifos methyl	4	1	255	255	0	0	6,000	6,510
64902-72-3 (M)	Chlorsulfuron	1	0	0	1	0	0	0	1
7440-47-3	Chromium	1,808	117	275,914	346,078	16,648	33	1,111,311	1,749,984
—	Chromium compounds	1,397	205	170,687	405,305	135,967	57,747	20,541,510	21,311,216
6459-94-5 (M)	C.I. Acid Red 114	1	0	0	0	0	0	0	0
569-64-2	C.I. Basic Green 4	2	0	0	5	0	0	0	5



Table 4-33, Cont.

Chemical	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁶³ Pounds	Total Transfers Pounds
Bromomethane	0	380	0	0	0	0	380
(N) 2-Bromo-2-nitropropane- 1,3-diol	0	0	0	0	0	0	0
Bromotrifluoromethane (Halon 1301)	0	0	0	0	0	0	0
(N) Bromoxynil	0	0	0	0	990	0	990
(N) Bromoxynil octanoate	0	0	173	0	13,569	0	13,742
(N) Brucine	0	0	0	0	0	0	0
1,3-Butadiene	7,011,736	34,521	96,020	705	4,788	0	7,147,770
Butyl acrylate	207,463	1,143,538	109,335	121,191	73,216	0	1,654,743
n-Butyl alcohol	3,262,027	8,627,455	1,516,710	1,772,304	447,145	755	15,626,396
sec-Butyl alcohol	24,670	6,221,727	39,689	59,663	18,376	0	6,364,125
tert-Butyl alcohol	2,256	27,928,818	973,977	837,780	30,783	0	29,773,614
1,2-Butylene oxide	990	326,640	93	0	5	0	327,728
Butyraldehyde	1,300	22,070	13,746	155,918	41	0	193,075
Cadmium	502,295	633	31,250	810	56,420	4,610	596,018
Cadmium compounds	1,291,025	2,233	166,707	3,384	1,648,139	41,925	3,153,413
Calcium cyanamide	0	0	0	0	0	0	0
Captan	0	0	418	3	3,868	255	4,544
Carbaryl	0	0	6,385	5	26,861	0	33,251
(N) Carbofuran	0	5	47,108	0	250	0	47,363
Carbon disulfide	250	372,531	15,921	351,949	2,949	0	743,600
Carbon tetrachloride	364,083	50,065	738,973	473	7,735	0	1,161,329
Carbonyl sulfide	0	0	16,000	0	0	0	16,000
(N) Carboxin	0	0	8	6	428	0	442
Catechol	0	94,900	961	92,901	563	0	189,325
Chlordane	0	0	0	95	0	0	95
(N) Chlorendic acid	0	0	488	0	0	0	488
(N) Chlorimuron ethyl	0	0	5,838	0	0	0	5,838
Chlorine	1,878,189	1,196	302,518	444,894	40,771	0	2,667,568
Chlorine dioxide	0	0	0	250	0	0	250
Chloroacetic acid	0	0	2,654	500	600	0	3,754
(N) 1-(3-Chloroallyl)-3,5,7-triaza -1-azoniaadamantane chloride	0	0	3,482	1,068	2,514	0	7,064
(N) p-Chloroaniline	0	540	114,500	5,801	11	0	120,852
Chlorobenzene	1,017,180	1,367,467	1,726,505	2,169	92,582	0	4,205,903
1-Chloro-1,1-difluoroethane (HCFC-142b)	0	250	27,156	0	10,600	0	38,006
Chlorodifluoromethane (HCFC-22)	252,573	126,744	222,520	5	55,084	300	657,226
Chloroethane	156,726	46,034	490,733	760	0	0	694,253
Chloroform	175,944	103,428	1,644,237	418,401	6,636	0	2,348,646
Chloromethane	0	4,233	238,170	2,980	1,557	0	246,940
Chloromethyl methyl ether	0	0	0	0	70	0	70
(N) 3-Chloro-2-methyl-1-propene	0	0	14,803	16	0	0	14,819
Chlorophenols	0	6,380	25,112	1,350	940	0	33,782
(N) Chloropicrin	0	54	34,087	0	36	0	34,177
Chloroprene	481,972	9,105	126,850	11,571	7,102	0	636,600
1-Chloro-1,1,2,2-tetra- fluoroethane (HCFC-124a)	0	0	0	0	0	0	0
2-Chloro-1,1,1,2-tetrafluoro- ethane (HCFC-124)	239,200	0	35,816	0	0	0	275,016
Chlorothalonil	0	2,564	141,072	1,264	97,420	0	242,320
(N) 2-Chloro-1,1,1-trifluoroethane (HCFC-133a)	0	0	0	5	0	0	5
(N) Chlorotrifluoromethane (CFC-13)	0	0	0	0	0	0	0
(N) Chlorpyrifos methyl	0	0	6,250	0	0	0	6,250
(N) Chlorsulfuron	0	0	3,444	0	0	0	3,444
Chromium	93,583,287	109,760	2,354,458	50,183	4,750,806	5	100,848,499
Chromium compounds	30,228,236	69,958	3,167,718	308,317	15,948,809	32,950	49,755,988
(N) C.I. Acid Red 114	0	0	0	5	0	0	5
C.I. Basic Green 4	0	0	499	0	0	0	499



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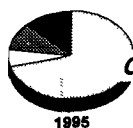
Table 4-33. Releases and Transfers of All TRI Chemicals, 1995 (Alphabetically Ordered), Continued.

CAS Number	Chemical	Total Forms Number	Form As Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
989-38-8	C.I. Basic Red 1	2	1	0	0	0	0	0	0
28407-37-6	C.I. Direct Blue 218	6	2	5	5	6	0	0	16
16071-86-6	C.I. Direct Brown 95	1	0	0	0	0	0	0	0
2832-40-8	C.I. Disperse Yellow 3	3	0	450	0	27	0	0	477
81-88-9	C.I. Food Red 15	2	1	0	0	0	0	0	0
97-56-3	C.I. Solvent Yellow 3	1	1	0	0	0	0	0	0
7440-48-4	Cobalt	241	22	13,623	20,872	17,295	0	48,334	100,124
—	Cobalt compounds	211	43	4,005	22,134	70,388	22,657	180,417	299,601
7440-50-8	Copper	2,612	143	451,774	724,728	42,111	29,787	1,680,175	2,928,575
—	Copper compounds	1,396	333	1,496,420	1,183,482	79,792	264,102	40,604,659	43,628,455
8001-58-9	Creosote	84	3	411,041	494,525	8,294	0	500	914,360
120-71-8	p-Cresidine	5	3	1,706	2,900	0	0	0	4,606
108-39-4	m-Cresol	29	3	28,042	19,958	1,675	680,000	0	729,675
95-48-7	o-Cresol	23	7	4,077	8,348	82	590,000	0	602,507
106-44-5	p-Cresol	30	2	27,664	18,707	1,066	342,000	0	389,437
1319-77-3	Cresol (mixed isomers)	149	12	339,432	1,250,492	15,011	648,882	2,345	2,256,162
4170-30-3	Crotonaldehyde	7	0	38,569	63,010	680	391,500	0	493,759
98-82-8	Cumene	230	24	709,797	1,167,318	1,490	9,403	455	1,888,463
80-15-9	Cumene hydroperoxide	43	8	51,904	21,079	73	280,000	3,400	356,456
135-20-6	Cupferron	1	0	0	0	0	0	0	0
21725-46-2	Cyanazine	5	0	300	691	492	0	0	1,483
—	Cyanide compounds	234	15	168,577	903,860	88,856	4,399,640	15,130	5,576,063
1134-23-2	Cycloate	3	1	20	6	1,108	16	0	1,150
110-82-7	Cyclohexane	361	17	3,510,382	4,547,194	19,107	238,200	10,605	8,325,488
108-93-0	Cyclohexanol	24	5	63,513	106,655	154	3,623,000	0	3,793,322
68359-37-5	Cyfluthrin	2	1	5	5	0	0	0	10
94-75-7	2,4-D (acetic acid)	27	2	2,580	4,308	1,083	250	4,325	12,546
533-74-4	Dazomet	11	2	672	370	230	0	0	1,272
53404-60-7	Dazomet, sodium salt	2	0	0	0	0	0	0	0
94-82-6	2,4-DB	2	0	500	250	0	0	0	750
1929-73-3	2,4-D butoxyethyl ester	3	1	255	255	0	0	0	510
94-80-4	2,4-D butyl ester	1	0	0	3	0	0	0	3
1163-19-5	Decabromodiphenyl oxide	133	12	17,378	21,893	3,846	11	201,698	244,826
13684-56-5	Desmedipham	1	0	0	0	0	0	0	0
1928-43-4	2,4-D 2-Ethylhexyl ester	11	2	1,510	1,255	250	0	0	3,015
101-80-4	4,4'-Diaminodiphenyl ether	3	1	5	18	359	0	0	382
95-80-7	2,4-Diaminotoluene	5	3	250	250	0	0	0	500
25376-45-8	Diaminotoluene (mixed isomers)	11	1	4,372	5,222	5,522	7,050	55	22,221
333-41-5	Diazinon	28	14	1,027	10,463	8	0	0	11,498
132-64-9	Dibenzofuran	36	5	12,034	6,420	2,843	0	220	21,517
106-93-4	1,2-Dibromoethane	19	4	7,858	4,514	306	0	256	12,934
84-74-2	Dibutyl phthalate	122	20	24,979	99,243	3,981	390,000	1,402	519,605
1918-00-9	Dicamba	6	1	515	12,065	250	113,600	0	126,430
99-30-9	Dichloran	4	2	5	5	0	0	0	10
95-50-1	1,2-Dichlorobenzene	27	3	151,821	119,701	3,789	26,000	11,521	312,832
541-73-1	1,3-Dichlorobenzene	7	0	2,975	4,553	526	0	0	8,054
106-46-7	1,4-Dichlorobenzene	24	3	117,473	126,323	1,287	0	3,100	248,183
25321-22-6	Dichlorobenzene (mixed isomers)	9	4	210	5,233	0	0	0	5,443
91-94-1	3,3'-Dichlorobenzidine	3	1	5	6	0	0	0	11
612-83-9	3,3'-Dichlorobenzidine dihydrochloride	13	4	0	0	0	0	0	0
64969-34-2	3,3'-Dichlorobenzidine sulfate	1	0	0	0	0	0	0	0
75-27-4	Dichlorobromomethane	1	0	0	2,300	0	0	50	2,350
764-41-0	1,4-Dichloro-2-butene	2	0	750	3,200	0	4,500	0	8,450
110-57-6	trans-1,4-Dichloro-2-butene	1	0	137	0	0	0	0	137
1649-08-7	1,2-Dichloro-1,1-difluoroethane (HCFC-132b)	1	0	740	150	20	0	0	910
75-71-8	Dichlorodifluoromethane (CFC-12)	136	3	2,047,886	1,160,139	17,172	89	0	3,225,286
107-06-2	1,2-Dichloroethane	81	7	593,163	640,757	5,194	24,339	256	1,263,709
540-59-0	1,2-Dichloroethylene	10	1	3,907	4,620	270	0	0	8,797
1717-00-6	1,1-Dichloro-1-fluoroethane (HCFC-141b)	283	5	6,200,958	4,851,426	580	26	35,767	11,088,757



Table 4-33, Cont.

Chemical	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁶³ Pounds	Total Transfers Pounds
C I Basic Red 1	0	250	250	250	668	0	1,418
(M) C I Direct Blue 218	0	0	0	22,512	1,400	0	23,912
C I Direct Brown 95	0	0	0	5	0	0	5
C I Disperse Yellow 3	0	0	0	5,194	1,061	0	6,255
C I Food Red 15	0	0	0	5	0	0	5
C I Solvent Yellow 3	0	0	0	0	0	0	0
Cobalt	9,947,414	10	21,575	16,845	189,432	0	10,175,276
Cobalt compounds	1,356,029	1,854	83,177	8,058	263,074	0	1,712,192
Copper	506,210,894	45,426	1,155,297	193,848	13,661,904	51,641	521,319,010
Copper compounds	190,986,142	32,322	2,009,355	133,613	7,240,076	505	200,402,013
Creosote	2,250	94,255	243,751	10,056	2,595,570	0	2,945,882
p-Cresidine	0	0	13,000	41,611	2,200	0	56,811
m-Cresol	1,503,813	17,854	81,671	7,837	3,218	0	1,614,393
o-Cresol	3,888	320	34,578	85,123	5,257	0	129,166
p-Cresol	900,001	42,381	61,524	931,786	3,168	0	1,938,860
Cresol (mixed isomers)	187,657	581,791	1,082,227	79,401	47,059	0	1,978,135
(M) Crotonaldehyde	0	0	0	0	0	0	0
Cumene	57,755	1,380,389	146,372	26,657	70,457	0	1,681,630
Cumene hydroperoxide	0	6	4,062	17,343	68,728	0	90,139
Cupferron	0	0	5,648	0	0	0	5,648
(M) Cyanazine	0	0	7,930	170	2,527	0	10,627
Cyanide compounds	24,708	3,523	457,456	230,689	150,209	500	867,085
(M) Cycloate	0	0	6,046	0	242	0	6,288
Cyclohexane	1,589,125	16,825,249	1,058,952	5,022	105,429	0	19,583,777
(M) Cyclohexanol	0	14,488	2,393	8,283	70	0	25,234
(M) Cyfluthrin	0	0	781	10	0	0	791
2,4-D (acetic acid)	0	0	31,590	20	17,430	0	49,040
(M) Dazomet	0	0	900	15	2,578	0	3,493
(M) Dazomet, sodium salt	0	0	7,507	5	250	0	7,762
(M) 2,4-DB	0	0	219	0	0	0	219
(M) 2,4-D butoxyethyl ester	0	0	1,598	0	0	0	1,598
(M) 2,4-D butyl ester	0	0	0	0	0	0	0
Decabromodiphenyl oxide	562,662	18,826	64,923	249,108	682,911	0	1,578,430
(M) Desmedipham	0	0	0	0	0	0	0
(M) 2,4-D 2-Ethylhexyl ester	0	0	10,324	10	3,131	0	13,465
4,4'-Diaminodiphenyl ether	0	0	380,169	5	120	0	380,294
2,4-Diaminotoluene	0	0	29,774	0	0	0	29,774
Diaminotoluene (mixed isomers)	0	386,996	1,925,458	8,720	28,625	0	2,349,799
(M) Diazinon	0	3,005	4,825	0	1,560	0	9,390
Dibenzofuran	27,735	270	42	503	19,824	0	48,374
1,2-Dibromoethane	0	18	72,467	5	3	0	72,493
Dibutyl phthalate	26,704	173,060	104,738	5,289	25,351	0	335,142
(M) Dicamba	0	0	33	5	0	0	38
(M) Dichloran	0	0	0	5	0	0	5
1,2-Dichlorobenzene	3,626,506	767,516	2,658,651	6,481	28,228	0	7,087,382
1,3-Dichlorobenzene	1,130	0	3,102	1,401	0	0	5,633
1,4-Dichlorobenzene	35,020	7,081	624,348	5	3,328	0	669,782
Dichlorobenzene (mixed isomers)	0	5,175	3,684	0	9	0	8,868
3,3'-Dichlorobenzidine	0	22,000	1,600	250	2,400	0	26,250
(M) 3,3'-Dichlorobenzidine dihydrochloride	0	0	21,950	14	0	0	21,964
(M) 3,3'-Dichlorobenzidine sulfate	0	0	2,500	0	0	0	2,500
Dichlorobromomethane	0	0	0	0	0	0	0
1,4-Dichloro-2-butene	0	13,000	312,500	0	0	0	325,500
(M) trans-1,4-Dichloro-2-butene	0	0	0	0	0	0	0
(M) 1,2-Dichloro-1,1-difluoro- ethane (HCFC-132b)	0	0	22,000	0	89	0	22,089
Dichlorodifluoromethane (CFC-12)	424,731	525	153,582	1,300	320	0	580,458
1,2-Dichloroethane	15,120,315	592,939	1,953,311	12,846	23,671	0	17,703,082
1,2-Dichloroethylene	6,200	0	2,234	0	0	0	8,434
1,1-Dichloro-1-fluoroethane (HCFC-141b)	386,055	103,624	864,315	2,555	152,077	715	1,509,341



1995

Table 4-33. Releases and Transfers of All TRI Chemicals, 1995 (Alphabetically Ordered), Continued.

CAS Number	Chemical	Total Forms Number	Form As Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
75-43-4 (M)	Dichlorofluoromethane (HCFC-21)	4	0	43,117	130,000	2	0	0	173,119
75-09-2	Dichloromethane	963	33	22,188,420	33,930,771	28,370	1,140,335	2,064	57,289,960
507-55-1 (M)	1,3-Dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb)	1	0	250	5	0	0	0	255
422-56-0 (M)	3,3-Dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca)	1	0	250	5	0	0	0	255
120-83-2	2,4-Dichlorophenol	3	0	3,173	407	245	15,900	0	19,725
78-87-5	1,2-Dichloropropane	11	0	235,605	380,865	4,344	0	20	620,834
10061-02-6 (M)	trans-1,3-Dichloropropene	1	0	250	6	0	0	0	256
78-88-6	2,3-Dichloropropene	5	0	2,346	1,907	0	0	0	4,253
542-75-6	1,3-Dichloropropylene	11	1	20,801	10,466	193	0	0	31,460
76-14-2	Dichlorotetrafluoroethane (CFC-114)	20	0	879,609	138,043	4,936	0	0	1,022,588
34077-87-7	Dichlorotrifluoroethane	1	0	750	250	0	0	0	1,000
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (HCFC-123)	11	1	60,017	52,989	251	0	0	113,257
62-73-7	Dichlorvos	4	2	5	250	5	0	0	260
115-32-2	Dicofol	4	2	500	250	0	0	0	750
77-73-6 (M)	Dicyclopentadiene	63	3	169,168	155,133	5,468	0	331	330,100
111-42-2	Diethanolamine	340	64	272,161	92,443	384,214	14,902	40,399	804,119
117-81-7	Di-(2-ethylhexyl) phthalate	292	28	194,958	334,570	867	0	126,159	656,554
64-67-5	Diethyl sulfate	30	9	6,846	132	0	0	0	6,978
35367-38-5 (M)	Diethylbenzuron	1	1	0	0	0	0	0	0
94-58-6	Dihydrosafrole	2	1	250	5	0	0	0	255
— (M)	Diisocyanates	996	272	158,719	226,662	1,370	0	29,032	415,783
55290-64-7 (M)	Dimethipin	1	1	0	0	0	0	0	0
60-51-5 (M)	Dimethoate	4	1	260	10	5	0	250	525
119-90-4	3,3'-Dimethoxybenzidine	3	3	0	0	0	0	0	0
20325-40-0 (M)	3,3'-Dimethoxybenzidine dihydrochloride	5	3	5	5	0	0	0	10
124-40-3 (M)	Dimethylamine	69	15	126,998	327,891	24,985	45,250	3,000	528,124
2300-66-5 (M)	Dimethylamine dicamba	3	1	500	5	0	0	0	505
121-69-7	N,N-Dimethylaniline	21	3	7,200	27,212	388	0	0	34,800
2524-03-0 (M)	Dimethyl chlorothiophosphate	3	1	5	5	0	51,677	20	51,707
68-12-2 (M)	N,N-Dimethylformamide	134	7	564,526	2,278,664	73,106	1,099,000	1,710	4,017,006
57-14-7	1,1-Dimethylhydrazine	4	0	781	38	0	0	0	819
105-67-9	2,4-Dimethylphenol	18	0	15,446	37,101	33	79,000	5	131,585
576-26-1 (M)	2,6-Dimethylphenol	3	1	1,820	980	19	33,000	0	35,819
131-11-3	Dimethyl phthalate	83	9	116,213	222,873	275	1,000	5	340,366
77-78-1	Dimethyl sulfate	39	11	5,154	1,278	1	0	0	6,433
99-65-0	m-Dinitrobenzene	2	0	71	476	84,906	0	1,066	86,519
528-29-0	o-Dinitrobenzene	3	0	4	61	1,086	0	136	1,287
100-25-4	p-Dinitrobenzene	1	0	0	16	30	0	37	83
88-85-7 (M)	Dinitrobutyl phenol	5	0	847	32	2	0	0	881
534-52-1	4,6-Dinitro-o-cresol	5	0	20	125	0	4,649	0	4,794
51-28-5	2,4-Dinitrophenol	4	0	111	1	2,000	0	0	2,112
121-14-2	2,4-Dinitrotoluene	4	1	1,871	3	231	0	0	2,105
606-20-2	2,6-Dinitrotoluene	1	0	468	1	126	0	0	595
25321-14-6	Dinitrotoluene (mixed isomers)	6	0	3,705	11,106	284	17,000	0	32,095
39300-45-3 (M)	Dinocap	1	1	0	0	0	0	0	0
123-91-1	1,4-Dioxane	52	1	114,767	108,098	216,689	0	5,736	445,290
122-39-4 (M)	Diphenylamine	22	1	30,389	14,367	200	9,060	65	54,081
2164-07-0 (M)	Dipotassium endothall	1	1	0	0	0	0	0	0
138-93-2 (M)	Disodium cyanodithioimido-carbonate	3	2	0	0	0	0	0	0
330-54-1 (M)	Diuron	8	1	1,505	1,260	10	0	5	2,780
2439-10-3 (M)	Dodine	1	0	5	5	0	0	0	10
120-36-5 (M)	2,4-DP	3	1	255	5	0	0	0	260
2702-72-9 (M)	2,4-D sodium salt	1	0	0	0	0	0	0	0
106-89-8	Epichlorohydrin	68	15	200,269	110,980	26,937	0	18,874	357,060
13194-48-4 (M)	Ethoprop	6	0	250	256	0	0	174,290	174,796
110-80-5	2-Ethoxyethanol	38	4	83,927	128,442	891	0	0	213,260



1985

Table 4-33, Cont.

Chemical	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁹⁸ Pounds	Total Transfers Pounds
(M) Dichlorofluoromethane (HCFC-21)	0	7,200	23,860	0	31,000	0	62,060
Dichloromethane	14,302,050	3,287,580	10,884,145	799,574	179,467	2,140	29,454,956
(M) 1,3-Dichloro-1,1,2,2,3-penta- fluoropropane (HCFC-225cb)	0	0	0	0	0	0	0
(M) 3,3-Dichloro-1,1,1,2,2-penta- fluoropropane (HCFC-225ca)	0	0	0	0	0	0	0
2,4-Dichlorophenol	0	0	0	0	0	0	0
1,2-Dichloropropane	0	0	3,591	4,116	1,364	0	9,071
(M) trans-1,3-Dichloropropene	0	0	0	0	0	0	0
2,3-Dichloropropene	1	0	510,840	0	0	0	510,841
1,3-Dichloropropylene	470	123	2,476	0	0	0	3,069
Dichlorotetrafluoroethane (CFC-114)	1,689	0	51,216	0	136	0	53,041
Dichlorotrifluoroethane	0	0	0	0	0	0	0
2,2-Dichloro-1,1,1-trifluoro- ethane (HCFC-123)	1,304	0	24,465	5	0	0	25,774
Dichlorvos	0	250	1,000	0	250	0	1,500
Dicofol	0	0	250	0	250	0	500
(M) Dicyclopentadiene	515	538,743	170,320	298	6,888	0	716,764
Diethanolamine	66,220	733,052	170,817	1,843,838	458,057	0	3,271,984
Di-(2-ethylhexyl) phthalate	5,994,834	263,015	265,470	21,170	2,972,243	0	9,516,732
Diethyl sulfate	6,420,000	415	1,655	3,480	250	0	6,425,800
(M) Diflubenzuron	0	0	0	0	0	0	0
Dihydrosafrole	0	0	0	999	0	0	999
(M) Diisocyanates	338,334	335,650	1,145,692	1,330	594,192	1,396	2,416,594
(M) Dimethipin	0	0	0	0	0	0	0
(M) Dimethoate	0	0	500	0	1,500	0	2,000
3,3'-Dimethoxybenzidine	0	0	0	0	0	0	0
(M) 3,3'-Dimethoxybenzidine dihydrochloride	0	0	0	5	0	0	5
(M) Dimethylamine	0	1,834	120,763	103,234	38,137	0	263,968
(M) Dimethylamine dicamba	0	0	0	0	154	0	154
N,N-Dimethylaniline	0	745,704	83,476	121,258	435	0	950,873
(M) Dimethyl chlorothiophosphate	0	0	20	0	0	0	20
(M) N,N-Dimethylformamide	389,577	3,311,354	855,002	1,943,946	286,315	500	6,786,694
1,1-Dimethyl hydrazine	57	0	10	0	5	0	72
2,4-Dimethylphenol	30,368	50,737	67,100	6,412	17	0	154,634
(M) 2,6-Dimethylphenol	0	0	8,580	0	2	0	8,582
Dimethyl phthalate	800	70,353	52,335	168,561	2,524	0	294,573
Dimethyl sulfate	171,230	0	3	0	0	0	171,233
m-Dinitrobenzene	0	0	0	0	0	0	0
o-Dinitrobenzene	0	0	0	0	0	0	0
p-Dinitrobenzene	0	0	0	0	0	0	0
(M) Dinitrobutyl phenol	0	0	110	0	0	0	110
4,6-Dinitro-o-cresol	0	410	12,600	2,127	7,220	0	22,357
2,4-Dinitrophenol	0	9	219	0	0	0	228
2,4-Dinitrotoluene	0	9	1,381	0	94	0	1,484
2,6-Dinitrotoluene	0	1	118	0	0	0	119
Dinitrotoluene (mixed isomers)	0	9,100	625,918	260,000	6	0	895,024
(M) Dinocap	0	0	0	0	0	0	0
1,4-Dioxane	13,524	1,196,939	87,738	211,057	352,996	0	1,862,254
(M) Diphenylamine	11,800	14,271	889,677	1,505	29,118	0	946,371
(M) Dipotassium endothall	0	0	0	0	0	0	0
(M) Disodium cyanodithioimido- carbonate	0	0	0	0	0	0	0
(M) Diuron	0	5	3,400	250	1,950	0	5,605
(M) Dodine	0	0	250	0	0	0	250
(M) 2,4-DP	0	0	5	0	17	0	22
(M) 2,4-D sodium salt	0	0	0	0	0	0	0
Epichlorohydrin	120	170,813	994,600	11,300	893	0	1,177,726
(M) Ethoprop	0	0	9,404	0	0	0	9,404
2-Ethoxyethanol	1,715	172,008	44,382	389,516	12,595	0	620,216



1995

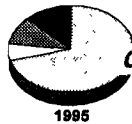
Table 4-33. Releases and Transfers of All TRI Chemicals, 1995 (Alphabetically Ordered), Continued.

CAS Number	Chemical	Total Forms Number	Form As Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
140-88-5	Ethyl acrylate	106	16	98,573	254,678	547	0	523	354,321
100-41-4	Ethylbenzene	1,008	53	2,684,845	7,468,949	9,347	475,234	19,146	10,657,521
541-41-3	Ethyl chloroformate	3	0	1,650	370	5	0	5	2,030
759-94-4 (M)	Ethyl dipropylthiocarbamate	4	0	1,872	491	291	373	0	3,027
74-85-1	Ethylene	283	1	14,291,229	19,827,406	27,324	0	0	34,145,959
—	Ethylenebisdithiocarbamic acid, salts and esters	3	1	1,380	250	0	0	0	1,630
107-21-1	Ethylene glycol	1,285	151	3,571,825	3,396,765	806,344	12,554,675	850,294	21,179,903
151-56-4	Ethyleneimine	1	0	0	3	0	0	0	3
75-21-8	Ethylene oxide	157	4	430,888	408,341	5,225	130,000	2,208	976,662
96-45-7	Ethylene thiourea	10	0	5	520	0	0	0	525
75-34-3	Ethylidene dichloride	5	0	16,011	24,460	16	0	0	40,487
52-85-7 (M)	Famphur	2	0	0	0	0	0	0	0
60168-88-9 (M)	Fenarimol	2	1	750	250	0	0	0	1,000
13356-08-6 (M)	Fenbutatin oxide	1	1	0	0	0	0	0	0
72490-01-8 (M)	Fenoxycarb	1	1	0	0	0	0	0	0
39515-41-8 (M)	Fenpropathrin	1	1	0	0	0	0	0	0
55-38-9 (M)	Fenthion	1	1	0	0	0	0	0	0
51630-58-1 (M)	Fenvalerate	1	1	0	0	0	0	0	0
2164-17-2	Fluometuron	6	2	275	521	0	0	0	796
7782-41-4 (M)	Fluorine	6	0	0	17,180	15,000	0	0	32,180
69409-94-5 (M)	Fluvalinate	1	1	0	0	0	0	0	0
133-07-3 (M)	Folpet	5	1	13	3	5	0	0	21
72178-02-0 (M)	Fomesafen	2	1	5	5	0	0	0	10
50-00-0	Formaldehyde	790	58	1,796,338	9,906,100	277,099	7,313,034	133,825	19,426,396
64-18-6	Formic acid	255	35	222,836	364,991	15,759	11,492,418	3,205	12,099,209
76-13-1	Freon 113	137	7	1,667,156	931,484	3,829	6	0	2,602,475
—	Glycol ethers	2,088	186	9,158,796	34,386,882	176,051	132,064	25,145	43,878,938
76-44-8	Heptachlor	1	0	203	0	6	0	0	209
118-74-1	Hexachlorobenzene	9	0	477	89	6,458	480	0	7,504
87-68-3	Hexachloro-1,3-butadiene	7	0	2,287	1,023	661	434	0	4,405
77-47-4	Hexachlorocyclopentadiene	4	0	8,196	115	6	250	0	8,567
67-72-1	Hexachloroethane	21	1	3,097	11,454	3,330	1,378	0	19,259
110-54-3 (M)	n-Hexane	676	18	23,071,340	54,262,867	46,418	5,380	10,157	77,396,162
51235-04-2 (M)	Hexazinone	4	0	255	505	6,322	0	0	7,082
67485-29-4 (M)	Hydramethylnon	2	0	10	10	0	0	0	20
302-01-2	Hydrazine	45	9	9,931	3,593	3	0	5	13,532
10034-93-2	Hydrazine sulfate	3	1	0	0	0	200,000	0	200,000
7647-01-0	Hydrochloric acid	1,976	162	2,571,395	75,344,797	7,286	7,382,957	24,097	85,330,532
74-90-8	Hydrogen cyanide	51	1	106,824	2,374,342	763	683,154	3	3,165,086
7664-39-3	Hydrogen fluoride	541	32	3,040,499	7,463,795	8,697	3,845	23,768	10,540,604
123-31-9	Hydroquinone	63	9	14,351	2,999	5,093	340,005	43	362,491
55406-53-6 (M)	3-Iodo-2-propynyl butyl- carbamate	10	2	1,629	130	10	0	265	2,034
13463-40-6 (M)	Iron pentacarbonyl	1	0	1,280	250	0	0	0	1,530
78-84-2	Isobutyraldehyde	24	2	111,667	144,612	752	44,075	47	301,153
25311-71-1 (M)	Isofenphos	3	1	255	730	0	0	9,000	9,985
67-63-0	Isopropyl alcohol (manufacturing)	78	8	359,073	611,142	0	0	0	970,215
80-05-7	4,4'-Isopropylidenediphenol	111	15	119,841	35,519	5,809	82,000	330,697	573,866
77501-63-4 (M)	Lactofen	2	0	361	426	0	0	0	787
7439-92-1	Lead	816	51	342,989	387,105	10,595	0	2,342,855	3,083,544
—	Lead compounds	823	70	392,155	910,473	54,158	912	12,340,666	13,698,364
58-89-9	Lindane	9	6	250	250	0	0	0	500
330-55-2 (M)	Linuron	4	1	10	260	5	0	5	280
554-13-2 (M)	Lithium carbonate	25	9	2,109	12,858	0	0	0	14,967
121-75-5 (M)	Malathion	21	9	1,005	1,507	0	0	0	2,512
108-31-6	Maleic anhydride	207	28	77,626	262,934	18	5	1,406	341,989
109-77-3	Malononitrile	2	0	0	0	0	432,956	0	432,956
12427-38-2	Maneb	6	4	5	268	0	0	0	273
7439-96-5	Manganese	1,446	108	459,384	226,972	116,516	17	8,330,322	9,133,211
—	Manganese compounds	984	243	703,340	2,121,478	822,341	3,590	41,326,472	44,977,221
93-65-2 (M)	Mecoprop	9	0	518	1,298	0	0	0	1,816



Table 4-33, Cont.

Chemical	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁽³⁾ Pounds	Total Transfers Pounds
Ethyl acrylate	32,449	1,392,322	65,529	29,764	9,907	0	1,529,971
Ethylbenzene	5,046,076	11,521,301	1,701,825	65,126	170,100	1	18,504,429
Ethyl chloroformate	0	0	0	0	0	0	0
(M) Ethyl dipropylthiocarbamate	0	0	33,010	5	9,366	0	42,381
Ethylene	3	10,615,177	2,116,256	267	1,771	0	12,733,474
Ethylenebisdithiocarbamic acid, salts and esters	0	0	6,200	1,200	0	0	7,400
Ethylene glycol	128,053,077	13,206,385	16,086,467	19,229,438	1,445,323	0	178,020,690
Ethyleneimine	0	0	0	0	0	0	0
Ethylene oxide	5,205	0	786	57,079	8,663	0	71,733
Ethylene thiourea	840	0	6,280	5	16,165	0	23,290
Ethylene dichloride	0	0	19,499	0	0	0	19,499
(M) Famphur	0	0	3,753	5	0	0	3,758
(M) Fenarimol	0	0	250	0	0	0	250
(M) Fenbutatin oxide	0	0	0	0	0	0	0
(M) Fenoxycarb	0	0	0	0	0	0	0
(M) Fenpropathrin	0	0	0	0	0	0	0
(M) Fenthion	0	0	0	0	0	0	0
(M) Fenvalerate	0	0	0	0	0	0	0
Fluometuron	0	5	27,300	225	2,355	0	29,885
(M) Fluorine	0	0	0	0	0	0	0
(M) Fluvalinate	0	0	0	0	0	0	0
(M) Folpet	84	0	291	5	1,941	0	2,321
(M) Fomesafen	0	0	5	0	750	0	755
Formaldehyde	57,001	436,142	685,023	2,338,820	239,211	2	3,756,199
Formic acid	28	158,482	70,599	1,461,049	26,357	0	1,716,515
Freon 113	890,932	101,293	512,735	31,220	2,560	0	1,538,740
Glycol ethers	3,562,125	13,901,661	2,806,450	10,226,422	765,025	510	31,262,193
Heptachlor	0	0	822	29	0	0	851
Hexachlorobenzene	1	0	433,736	1	6,975	0	440,713
Hexachloro-1,3-butadiene	13	0	163,218	2	252	0	163,485
Hexachlorocyclopentadiene	0	0	24,199	709	2,600	0	27,508
Hexachloroethane	0	75,132	107,678	0	1,208	0	184,018
(M) n-Hexane	10,220,703	17,240,122	3,974,847	79,926	116,112	5,588	31,637,298
(M) Hexazinone	0	0	216,109	250	2,973	0	219,332
(M) Hydramethylnon	0	0	0	255	0	0	255
Hydrazine	57	0	2,551	6,378	23,504	0	32,490
Hydrazine sulfate	0	0	0	1,900	0	0	1,900
Hydrochloric acid	25,155,781	1,765	5,978,842	2,126,997	2,689,339	38,032	35,990,756
Hydrogen cyanide	0	250	179	10,124	326	0	10,879
Hydrogen fluoride	183,734	9,426	2,432,398	384,084	1,012,638	0	4,022,280
Hydroquinone	0	37,786	41,092	59,568	4,406	0	142,852
(M) 3-Iodo-2-propynyl butyl- carbamate	16	1	39,645	9,071	12,763	0	61,496
(M) Iron pentacarbonyl	0	0	0	0	0	0	0
Isobutyraldehyde	10,927	567,584	96,600	0	0	0	675,111
(M) Isofenphos	0	0	9,000	0	0	0	9,000
Isopropyl alcohol (manufacturing)	45,561	267,277	228,973	3,226	2,577	0	547,614
4,4'-Isopropylidenediphenol	2,027	408,778	105,467	21,011	420,944	0	958,227
(M) Lactofen	0	0	1	0	250	0	251
Lead	63,309,539	6,469	1,706,388	20,309	2,035,049	760	67,078,514
Lead compounds	287,825,976	62,461	5,814,525	38,025	16,981,225	1,257,760	311,979,972
Lindane	0	0	2,809	0	20	0	2,829
(M) Linuron	0	5	250	0	1,250	0	1,505
(M) Lithium carbonate	0	0	750	0	596,553	0	597,303
(M) Malathion	0	0	1,528	0	31	0	1,559
Maleic anhydride	0	102,756	1,143,608	10,660	14,429	0	1,271,453
Malononitrile	0	0	0	0	0	0	0
Maneb	0	5	6,500	0	2,461	0	8,966
Manganese	76,708,995	345	1,387,882	75,616	10,526,703	750	88,700,291
Manganese compounds	48,997,808	196,541	3,882,936	325,508	22,866,004	520,320	76,789,117
(M) Mecoprop	0	0	1,500	5	2,304	0	3,809



Chapter 4 — 1995 TRI Releases and Transfers

Table 4-33. Releases and Transfers of All TRI Chemicals, 1995 (Alphabetically Ordered), Continued.

CAS Number	Chemical	Total Forms Number	Form As Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
149-30-4 (N)	2-Mercaptobenzothiazole	26	7	1,782	32,916	5	97,000	260	131,963
7439-97-6	Mercury	24	0	8,689	4,466	192	0	1,016	14,363
—	Mercury compounds	10	0	2,009	1,147	136	6	0	3,298
150-50-5 (N)	Merphos	1	0	186	0	0	0	0	186
126-98-7	Methacrylonitrile	5	0	943	2	0	555,265	0	556,210
137-42-8 (N)	Metham sodium	10	2	1,841	2,546	1	0	252	4,640
67-56-1	Methanol	2,412	127	30,910,899	179,265,280	8,378,058	24,812,653	1,645,466	245,012,356
94-74-6 (N)	Methoxone	5	1	755	506	0	0	0	1,261
72-43-5	Methoxychlor	2	1	0	0	0	0	0	0
109-86-4	2-Methoxyethanol	45	2	147,418	705,410	12,407	0	5	865,240
96-33-3	Methyl acrylate	71	7	71,308	172,606	5,962	159	0	250,035
1634-04-4	Methyl tert-butyl ether	180	10	1,030,032	2,355,182	78,554	15,238	3,929	3,482,935
79-22-1	Methyl chlorocarbonate	3	0	2,400	195	5	0	5	2,605
101-14-4	4,4'-Methylenebis(2-chloro-aniline)	22	11	250	10	0	0	0	260
101-61-1	4,4'-Methylenebis(N,N-dimethyl) benzeneamine	2	0	5	5	0	0	0	10
74-95-3	Methylene bromide	5	0	22,539	40,552	0	0	0	63,091
101-77-9	4,4'-Methylenedianiline	25	4	8,546	1,791	63	23,110	0	33,510
78-93-3	Methyl ethyl ketone	2,255	34	24,861,372	44,485,984	63,120	556,607	87,856	70,054,939
60-34-4	Methyl hydrazine	3	2	250	250	0	0	0	500
74-88-4	Methyl iodide	6	1	20,747	871	0	10,000	0	31,618
108-10-1	Methyl isobutyl ketone	1,001	26	5,629,446	15,874,810	51,282	158,600	7,041	21,721,179
624-83-9	Methyl isocyanate	5	0	1,344	314	0	0	0	1,658
556-61-6 (N)	Methyl isothiocyanate	2	0	36	36	0	0	0	72
75-86-5 (N)	2-Methylacetonitrile	4	1	3,069	663	0	0	0	3,732
80-62-6	Methyl methacrylate	265	28	484,024	1,781,273	2,177	120,000	1,056	2,388,530
924-42-5 (N)	N-Methylolacrylamide	23	5	973	1,858	52	0	34	2,917
298-00-0 (N)	Methyl parathion	5	1	750	692	0	0	0	1,442
109-06-8	2-Methylpyridine	6	0	81,610	5,081	0	61,720	0	148,411
872-50-4 (N)	N-Methyl-2-pyrrolidone	253	11	1,214,106	1,412,926	201,221	769,037	135,050	3,732,340
21087-64-9 (N)	Metribuzin	3	0	8	1,928	9	0	0	1,945
7786-34-7 (N)	Mevinphos	1	0	0	0	0	0	0	0
90-94-8	Michler's ketone	1	0	0	1,577	0	0	0	1,577
2212-67-1 (N)	Molinate	3	0	432	263	502	0	0	1,197
1313-27-5	Molybdenum trioxide	156	7	135,886	46,901	63,555	333,730	85,442	665,514
76-15-3	Monochloropentafluoroethane (CFC-115)	14	1	262,565	12,694	2,854	3	0	278,116
88671-89-0 (N)	Myclobutanil	2	2	0	0	0	0	0	0
142-59-6 (N)	Nabam	3	0	0	0	0	0	0	0
300-76-5 (N)	Naled	2	0	0	50	0	0	0	50
91-20-3	Naphthalene	516	59	1,300,991	1,270,998	43,311	15,569	29,072	2,659,941
134-32-7	alpha-Naphthylamine	1	1	0	0	0	0	0	0
7440-02-0	Nickel	1,798	112	146,458	180,645	23,703	6,370	371,024	728,200
—	Nickel compounds	860	61	107,385	156,149	53,029	107,136	2,291,930	2,715,629
— (N)	Nicotine and salts	24	1	26,297	351,686	755	0	135	378,873
1929-82-4 (N)	Nitrapyrin	3	0	7	0	119,451	0	0	119,458
— (N)	Nitrate compounds	649	37	15,932	227,510	88,495,829	46,299,521	2,704,310	137,743,102
7697-37-2	Nitric acid	1,786	107	633,752	1,674,713	46,581	18,755,717	233,746	21,344,509
139-13-9	Nitrotriactic acid	7	0	1	0	34	2,900	0	2,935
100-01-6 (N)	p-Nitroaniline	4	0	10,003	1,202	2	0	0	11,207
99-59-2	5-Nitro-o-anisidine	1	0	5	5	0	0	0	10
98-95-3	Nitrobenzene	16	1	17,106	8,377	874	330,344	43	356,744
55-63-0	Nitroglycerin	19	1	1,678	24,399	13,305	0	0	39,382
88-75-5	2-Nitrophenol	4	0	5	33	50	0	0	88
100-02-7	4-Nitrophenol	6	0	910	35	0	0	0	945
79-46-9	2-Nitropropane	5	1	21,057	10,208	3,000	0	0	34,265
86-30-6	N-Nitrosodiphenylamine	2	0	10	0	0	0	0	10
156-10-5	p-Nitrosodiphenylamine	2	0	24	0	0	0	0	24
59-89-2	N-Nitrosomorpholine	1	0	0	0	0	0	0	0
99-55-8	5-Nitro-o-toluidine	3	1	0	5	0	0	0	5
27314-13-2 (N)	Norflurazon	2	0	0	5	0	0	0	5
19044-88-3 (N)	Oryzalin	1	1	0	0	0	0	0	0



Table 4-33, Cont.

Chemical	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁽³⁾ Pounds	Total Transfers Pounds
(N) 2-Mercaptobenzothiazole	104,825	1,100	1,055,500	7,855	286,739	0	1,456,019
Mercury	58,206	0	11,589	19	6,103	871	76,788
Mercury compounds	0	505	5,150	5	201,972	0	207,632
(N) Merphos	0	0	0	0	0	0	0
Methacrylonitrile	0	0	0	0	0	0	0
(N) Metham sodium	0	0	365	2	13,050	0	13,417
Methanol	23,207,662	94,838,423	31,243,694	89,081,289	1,929,344	109,611	240,410,023
(N) Methoxone	0	0	5	5	1,810	0	1,820
Methoxychlor	0	0	0	0	0	0	0
2-Methoxyethanol	0	1,916,061	126,573	1,076,268	285	0	3,119,187
Methyl acrylate	40,447	184,341	92,773	23,261	865	0	341,687
Methyl tert-butyl ether	32,736	1,361,095	420,220	101,520	47,836	0	1,963,407
Methyl chlorocarbonate	0	0	0	0	0	0	0
4,4'-Methylenebis(2-chloro-aniline)	0	2,017	6,724	5	5	0	8,751
4,4'-Methylenebis(N,N-dimethyl) benzeneamine	0	0	0	0	0	0	0
Methylene bromide	0	0	0	979	0	0	979
4,4'-Methylenedianiline	0	17,264	92,309	2,026	9,673	0	121,272
Methyl ethyl ketone	23,732,285	42,506,199	5,828,360	502,492	221,531	5,830	72,796,697
Methyl hydrazine	0	0	5	0	0	0	5
Methyl iodide	0	0	760	0	8,600	0	9,360
Methyl isobutyl ketone	16,264,345	18,040,099	1,577,947	398,689	97,316	3,866	36,382,262
Methyl isocyanate	0	0	0	0	0	0	0
(N) Methyl isothiocyanate	0	62	82	0	0	0	144
(N) 2-Methylacetonitrile	0	0	0	0	0	0	0
Methyl methacrylate	19,750	1,436,890	458,692	255,733	215,679	0	2,386,744
(N) N-Methylolacrylamide	0	294	1,612	2,798	13	0	4,717
(N) Methyl parathion	0	0	0	0	2,684	250	2,934
2-Methylpyridine	0	466	2,163	19,250	40	0	21,919
(N) N-Methyl-2-pyrrolidone	6,561,770	2,396,552	1,892,355	1,181,811	367,099	0	12,399,587
(N) Metribuzin	0	0	6,423	0	0	0	6,423
(N) Mevinphos	0	0	0	0	0	0	0
Michler's ketone	0	436	0	0	0	0	436
(N) Molinate	0	0	128,274	0	6,363	0	134,637
Molybdenum trioxide	2,526,746	3,530	220,729	60,213	1,052,836	0	3,864,054
Monochloropentafluoroethane (CFC-115)	2,200	0	24,651	0	7	0	26,858
(N) Myclobutanil	0	0	0	0	0	0	0
(N) Nabam	0	0	251	5	0	0	256
(N) Naled	0	0	386	6	2,200	0	2,592
Naphthalene	296,695	1,873,964	1,118,883	17,959	473,758	0	3,781,259
alpha-Naphthylamine	0	0	0	0	0	0	0
Nickel	71,452,433	1,348	788,561	79,195	2,940,851	516	75,262,904
Nickel compounds	28,930,230	5,841	1,228,399	100,671	5,615,280	755	35,881,176
(N) Nicotine and salts	100,961	0	1,680	278,412	254,431	0	635,484
(N) Nitrapyrin	43,000	0	0	0	0	0	43,000
(N) Nitrate compounds	1,826,869	0	3,328,185	49,877,277	5,112,392	0	60,144,723
Nitric acid	3,500,782	255	10,964,512	4,589,259	4,815,828	23,808	23,894,444
Nitrilotriacetic acid	0	0	1,872	0	0	0	1,872
(N) p-Nitroaniline	0	0	75,029	17,007	0	0	92,036
5-Nitro-o-anisidine	0	0	0	5	0	0	5
Nitrobenzene	0	77,514	627,862	219	961	0	706,556
Nitroglycerin	0	35,138	21,914	203	0	0	57,255
2-Nitrophenol	0	6	24,011	58	0	0	24,075
4-Nitrophenol	0	3	574,817	176	0	0	574,996
2-Nitropropane	520	314	0	0	0	0	834
N-Nitrosodiphenylamine	0	0	337,000	0	0	0	337,000
p-Nitrosodiphenylamine	0	15,000	65	0	520	0	15,585
N-Nitrosomorpholine	0	0	0	0	0	0	0
5-Nitro-o-toluidine	0	0	0	0	30	0	30
(N) Norflurazon	0	0	1,000	0	54,000	0	55,000
(N) Oryzalin	0	0	0	0	0	0	0



Table 4-33. Releases and Transfers of All TRI Chemicals, 1995 (Alphabetically Ordered), Continued.

CAS Number	Chemical	Total Forms Number	Form As Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
301-12-2 (M)	Oxydemeton methyl	1	1	0	0	0	0	0	0
19666-30-9 (M)	Oxydiazon	3	0	10	655	0	0	0	665
42874-03-3 (M)	Oxyfluorfen	2	0	0	87	3	0	0	90
10028-15-6 (M)	Ozone	26	1	41,779	489,392	0	0	0	531,171
123-63-7	Paraldehyde	2	0	8	25	0	0	0	33
1910-42-5 (M)	Paraquat dichloride	4	0	500	500	0	0	0	1,000
56-38-2	Parathion	2	2	0	0	0	0	0	0
1114-71-2 (M)	Pebulate	2	0	257	250	122	0	0	629
40487-42-1 (M)	Pendimethalin	5	1	750	500	250	0	500	2,000
76-01-7	Pentachloroethane	4	0	1,253	281	22	0	0	1,556
87-86-5	Pentachlorophenol	36	6	1,825	4,441	2,439	0	250	8,955
79-21-0	Peracetic acid	22	4	5,743	36,599	15	0	582	42,939
594-42-3 (M)	Perchloromethyl mercaptan	2	0	5	536	0	0	0	541
52645-53-1 (M)	Permethrin	13	4	784	515	37	0	250	1,586
85-01-8 (M)	Phenanthrene	30	1	27,228	38,421	19	0	455	66,123
108-95-2	Phenol	735	42	2,343,063	6,720,846	69,875	3,723,235	171,344	13,028,363
26002-80-2 (M)	Phenothrin	1	1	0	0	0	0	0	0
95-54-5 (M)	1,2-Phenylenediamine	7	2	294	668	41,100	0	2,176	44,238
108-45-2 (M)	1,3-Phenylenediamine	16	3	2,009	2,609	43,343	0	63,153	111,114
106-50-3	p-Phenylenediamine	10	0	3,466	974	856	0	653	5,949
90-43-7	2-Phenylphenol	17	2	61	27,002	10	0	5	27,078
57-41-0 (M)	Phenytol	1	0	0	0	0	0	0	0
75-44-5	Phosgene	28	4	2,902	6,192	0	5	0	9,099
7803-51-2 (M)	Phosphine	3	0	140	1,351	0	0	0	1,491
7664-38-2	Phosphoric acid	2,739	452	440,282	823,010	20,402,696	7,560	35,884,482	57,558,030
7723-14-0	Phosphorus (yellow or white)	52	8	22,588	6,033	3,661	0	3,906	36,188
85-44-9	Phthalic anhydride	182	20	74,225	530,376	711	0	674	605,986
1918-02-1 (M)	Picloram	2	0	220	0	1	0	0	221
88-89-1	Picric acid	9	0	219	2	0	49,256	0	49,477
51-03-6 (M)	Piperonyl butoxide	12	7	265	510	0	0	0	775
—	Polybrominated biphenyls	1	1	0	0	0	0	0	0
— (M)	Polychlorinated alkanes	63	15	26,742	8,110	6,206	0	0	41,058
1336-36-3	Polychlorinated biphenyls (PCBs)	9	0	0	0	0	0	0	0
— (M)	Polycyclic aromatic compounds	138	7	80,920	603,381	4,915	0	14,164	703,380
7758-01-2 (M)	Potassium bromate	1	0	5	0	0	0	0	5
128-03-0 (M)	Potassium dimethyldithio-carbamate	9	2	90	116	5	0	0	211
137-41-7 (M)	Potassium N-methyldithio-carbamate	3	1	26	9	0	0	0	35
41198-08-7 (M)	Profenofos	1	0	0	0	0	0	0	0
7287-19-6 (M)	Prometryn	6	0	1,205	276	159	0	0	1,640
23950-58-5	Pronamide	1	0	5	250	0	0	0	255
1918-16-7 (M)	Propachlor	4	0	250	81	0	0	0	331
1120-71-4	Propane sultone	1	0	0	0	0	0	0	0
709-98-8 (M)	Propanil	4	0	505	1,852	250	0	0	2,607
2312-35-8 (M)	Propargite	1	0	5	5	0	0	0	10
107-19-7 (M)	Propargyl alcohol	11	1	1,650	8,229	0	290,680	0	300,559
31218-83-4 (M)	Propetamphos	1	0	250	250	0	0	0	500
60207-90-1 (M)	Propiconazole	3	2	0	0	0	0	0	0
123-38-6	Propionaldehyde	22	0	78,124	136,913	27,012	101,432	0	343,481
114-26-1	Propoxur	5	3	0	5	0	0	0	5
115-07-1	Propylene	341	28	11,551,638	10,009,591	4,045	0	42	21,565,316
75-55-8	Propyleneimine	7	2	564	36	0	0	0	600
75-56-9	Propylene oxide	124	3	345,822	493,042	29,934	22,577	4,403	895,778
110-86-1	Pyridine	39	2	60,722	36,582	830	446,000	4	544,138
91-22-5	Quinoline	22	5	7,287	3,875	20	13,000	405	24,587
106-51-4	Quinone	4	0	3,800	3,301	1,500	0	0	8,601
82-68-8	Quintozone	10	4	914	510	0	0	800	2,224
76578-14-8 (M)	Quizalofop-ethyl	2	0	6	0	0	0	0	6
10453-86-8 (M)	Resmethrin	2	2	0	0	0	0	0	0
81-07-2	Saccharin (manufacturing)	1	0	90	9	0	0	0	99
94-59-7	Safrole	1	0	250	5	0	0	0	255



1995

Table 4-33, Cont.

Chemical	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁽³⁾ Pounds	Total Transfers Pounds
(M) Oxydemeton methyl	0	0	0	0	0	0	0
(M) Oxydiazon	0	0	250	0	0	0	250
(M) Oxyfluorfen	0	0	11,958	3,135	0	0	15,093
(M) Ozone	0	0	0	0	0	0	0
Paraldehyde	0	11	0	0	0	0	11
(M) Paraquat dichloride	0	0	60	110	0	0	170
Parathion	0	0	0	0	0	0	0
(M) Pebulate	0	0	4,646	0	811	0	5,457
(M) Pendimethalin	0	0	6,724	0	0	0	6,724
Pentachloroethane	0	0	75,402	0	0	0	75,402
Pentachlorophenol	360	14,354	49,742	900	23,942	0	89,298
Peracetic acid	0	0	10,300	2,396	0	0	12,696
(M) Perchloromethyl mercaptan	0	0	0	0	0	0	0
(M) Permethrin	0	5	1,048	0	751	0	1,804
(M) Phenanthrene	1,190	17	154	2,979	72,491	0	76,831
Phenol	344,614	3,695,188	3,235,034	3,859,436	1,269,184	5,100	12,408,556
(M) Phenothrin	0	0	0	0	0	0	0
(M) 1,2-Phenylenediamine	0	0	7,509	360	31	0	7,900
(M) 1,3-Phenylenediamine	0	107	132,531	2,005	80	0	134,723
p-Phenylenediamine	0	0	16,312	4,150	0	0	20,462
2-Phenylphenol	0	0	0	3,626	5,656	0	9,282
(M) Phenytoin	0	0	0	0	19,300	0	19,300
Phosgene	0	0	2,414	0	0	0	2,414
(M) Phosphine	0	0	0	0	0	0	0
Phosphoric acid	11,427,354	61,289	1,807,719	3,395,801	1,805,527	33,250	18,530,940
Phosphorus (yellow or white)	26,059	0	147,492	505	23,650	0	197,706
Phthalic anhydride	1,261	4,951,064	335,251	51,793	76,916	0	5,416,285
(M) Picloram	0	0	0	0	0	0	0
Picric acid	0	2	0	0	0	0	2
(M) Piperonyl butoxide	0	5	15,908	250	750	0	16,913
Polybrominated biphenyls	0	0	0	0	0	0	0
(M) Polychlorinated alkanes	148,314	142,329	246,463	21,811	241,564	0	800,481
Polychlorinated biphenyls (PCBs)	0	0	645,345	0	34,432	0	679,777
(M) Polycyclic aromatic compounds	8,515,437	12,072	2,565	1,748	1,200,746	0	9,732,568
(M) Potassium bromate	0	0	0	0	0	0	0
(M) Potassium dimethyldithio- carbamate	0	0	776	160,586	0	0	161,362
(M) Potassium N-methyldithio- carbamate	0	0	0	0	0	0	0
(M) Profenofos	0	0	0	0	0	0	0
(M) Prometryn	0	5	6,713	37	890	0	7,645
Pronamide	0	0	1,350	0	0	0	1,350
(M) Propachlor	0	0	21,220	125	777	0	22,122
Propane sultone	0	0	0	0	0	0	0
(M) Propanil	0	0	1,000	0	3,723	0	4,723
(M) Propargite	0	544	3,616	107	0	0	4,267
(M) Propargyl alcohol	0	345,032	51,584	26,410	936	0	423,962
(M) Propetamphos	0	0	0	0	750	0	750
(M) Propiconazole	0	0	1,025	0	0	0	1,025
Propionaldehyde	0	5,565	36	87,484	0	0	93,085
Propoxur	0	0	1,500	250	0	250	2,000
Propylene	0	3,132,286	80,240	5	298	0	3,212,829
Propyleneimine	0	0	0	0	0	0	0
Propylene oxide	0	281,155	36,882	350,949	8,633	0	677,619
Pyridine	14,008	185,968	190,110	291,689	66	0	681,841
Quinoline	2,243	251	16,365	250	3,744	0	22,853
Quinone	0	1,328	30,173	0	0	0	31,501
Quintozone	0	0	759,393	88	192	0	759,673
(M) Quizalofop-ethyl	0	0	0	0	0	0	0
(M) Resmethrin	0	0	0	0	0	0	0
Saccharin (manufacturing)	0	0	0	10	1,500	0	1,510
Safrole	0	0	0	5	0	0	5



1995

Table 4-33. Releases and Transfers of All TRI Chemicals, 1995 (Alphabetically Ordered), Continued.

CAS Number	Chemical	Total Forms Number	Form As Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
7782-49-2	Selenium	15	6	5	1,445	92	0	23	1,565
—	Selenium compounds	36	8	2,651	68,552	2,184	3,640	110,250	187,277
7440-22-4	Silver	72	7	6,218	3,065	161	0	250	9,694
—	Silver compounds	56	8	2,282	13,637	6,284	380	30,425	53,008
122-34-9 (N)	Simazine	7	2	500	4,490	232	0	5	5,227
26628-22-8 (N)	Sodium azide	12	0	1,005	34,070	200	0	255	35,530
1982-69-0 (N)	Sodium dicamba	3	1	500	13,850	0	750	0	15,100
128-04-1 (N)	Sodium dimethyldithiocarbamate	57	7	1,298	1,448	20	0	0	2,766
7632-00-0 (N)	Sodium nitrite	289	62	79,292	143,121	1,082,902	978,500	80,798	2,364,613
100-42-5	Styrene	1,491	27	12,115,785	29,359,298	17,570	209,945	171,010	41,873,608
96-09-3	Styrene oxide	5	1	1	12	0	0	0	13
7664-93-9	Sulfuric acid	1,570	117	719,364	25,484,919	125,373	30,040	126,306	26,486,002
2699-79-8 (N)	Sulfuryl fluoride	2	0	7	355,000	0	0	0	355,007
35400-43-2 (N)	Sulprofos	1	0	211	36	0	0	0	247
34014-18-1 (N)	Tebuthiuron	1	0	0	5	0	0	0	5
3383-96-8 (N)	Temephos	1	1	0	0	0	0	0	0
5902-51-2 (N)	Terbacil	2	1	0	0	4,608	0	0	4,608
630-20-6	1,1,1,2-Tetrachloroethane	7	0	4,401	1,625	0	0	0	6,026
79-34-5	1,1,2,2-Tetrachloroethane	16	1	4,904	3,371	2,222	0	0	10,497
127-18-4	Tetrachloroethylene	428	26	4,493,166	4,884,751	2,407	20,481	6	9,400,811
354-14-3 (N)	1,1,2,2-Tetrachloro-1-fluoroethane	1	1	0	0	0	0	0	0
961-11-5	Tetrachlorvinphos	4	0	20	606	5	0	0	631
64-75-5 (N)	Tetracycline hydrochloride	2	0	0	754	0	0	0	754
7696-12-0 (N)	Tetramethrin	2	1	0	0	0	0	0	0
7440-28-0	Thallium	1	0	5	250	0	0	755	1,010
148-79-8 (N)	Thiabendazole	3	0	175	3,754	0	0	0	3,929
28249-77-6 (N)	Thiobencarb	2	0	255	255	0	0	0	510
59669-26-0 (N)	Thiodicarb	2	0	105	271	0	0	0	376
23564-05-8 (N)	Thiophanate-methyl	3	1	5	497	0	0	0	502
79-19-6 (N)	Thiosemicarbazide	1	1	0	0	0	0	0	0
62-56-6	Thiourea	26	3	872	758	1,487	5,000	250	8,367
137-26-8	Thiram	58	5	1,235	1,374	50	0	0	2,659
1314-20-1	Thorium dioxide	1	0	0	1	0	0	0	1
7550-45-0	Titanium tetrachloride	33	3	15,877	4,422	0	0	0	20,299
108-88-3	Toluene	3,370	81	52,017,387	93,446,998	53,287	303,491	66,306	145,887,469
584-84-9	Toluene-2,4-diisocyanate	64	10	3,666	4,139	0	0	0	7,805
91-08-7	Toluene-2,6-diisocyanate	40	8	984	2,060	0	0	0	3,044
26471-62-5	Toluenediisocyanate (mixed isomers)	187	32	14,783	33,814	105	0	275	48,977
95-53-4	o-Toluidine	22	3	9,557	2,029	256	22,140	12	33,994
43121-43-3 (N)	Triadimefon	1	1	0	0	0	0	0	0
2303-17-5 (N)	Triallate	2	0	250	338	0	0	0	588
101200-48-0 (N)	Tribenuron methyl	1	0	0	1	0	0	0	1
1983-10-4 (N)	Tributyltin fluoride	1	0	0	1	250	0	0	251
2155-70-6 (N)	Tributyltin methacrylate	2	0	15	15	250	0	0	280
78-48-8 (N)	S,S,S-Tributyltrithiophosphate	2	0	1,255	475	2	0	0	1,732
52-68-6	Trichlorfon	2	2	0	0	0	0	0	0
76-02-8 (N)	Trichloroacetyl chloride	1	0	0	1	0	0	0	1
120-82-1	1,2,4-Trichlorobenzene	31	2	31,221	137,269	259	12,500	0	181,249
71-55-6	1,1,1-Trichloroethane	781	38	10,908,176	11,692,921	1,118	126	39,220	22,641,561
79-00-5	1,1,2-Trichloroethane	21	1	38,919	241,428	870	0	0	281,217
79-01-6	Trichloroethylene	717	12	12,230,811	13,253,424	1,477	550	3,577	25,489,839
75-69-4	Trichlorofluoromethane (CFC-11)	54	4	522,538	434,923	410	22	0	957,893
88-06-2	2,4,6-Trichlorophenol	1	0	135	26	210	0	0	371
96-18-4 (N)	1,2,3-Trichloropropane	5	0	10,251	830	1,600	0	0	12,681
57213-69-1 (N)	Triclopyr triethylammonium salt	1	0	0	3	0	0	0	3
121-44-8 (N)	Triethylamine	143	20	471,422	1,545,650	27,685	309,512	14,010	2,368,279
1582-09-8	Trifluralin	23	4	13,318	3,826	92	0	8,250	25,486
26644-46-2 (N)	Triforine	2	1	5	750	0	0	0	755



Table 4-33, Cont.

Chemical	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³³ Pounds	Total Transfers Pounds
Selenium	4,604	0	1,200	2,276	25	0	8,105
Selenium compounds	158,278	19	49,393	288	73,945	0	281,923
Silver	1,378,373	1	6,416	137	8,397	0	1,393,324
Silver compounds	897,457	0	22,365	2,064	2,492	0	924,378
(M) Simazine	0	0	161	5	26,231	0	26,397
(M) Sodium azide	522,915	1	3,911,454	980	133,587	0	4,568,937
(M) Sodium dicamba	0	0	0	750	0	0	750
(M) Sodium dimethyldithio- carbamate	196,347	0	267,377	43,861	152,357	0	659,942
(M) Sodium nitrite	23,857	109	392,444	2,532,638	203,201	0	3,152,249
Styrene	651,362	6,734,745	3,936,837	118,820	4,220,752	1,000	15,663,516
Styrene oxide	0	0	0	0	0	0	0
Sulfuric acid	4,137,322	24,747	8,407,499	4,066,333	4,002,609	160,283	20,798,793
(M) Sulfuryl fluoride	0	0	0	0	0	0	0
(M) Sulprofos	0	0	2	0	0	0	2
(M) Tebuthiuron	0	0	1,000	0	0	0	1,000
(M) Temephos	0	0	0	0	0	0	0
(M) Terbacil	0	0	7,558	0	0	0	7,558
1,1,1,2-Tetrachloroethane	0	0	379,204	0	2	0	379,206
1,1,2,2-Tetrachloroethane	2,233,342	880	150,072	0	7	0	2,384,301
Tetrachloroethylene	6,585,432	1,094,487	1,894,883	14,996	72,961	75,924	9,738,683
(M) 1,1,2,2-Tetrachloro-1- fluoroethane	0	0	0	0	0	0	0
Tetrachlorvinphos	0	47,000	4,230	0	4,200	0	55,430
(M) Tetracycline hydrochloride	0	0	500	1,256	112	0	1,868
(M) Tetramethrin	0	0	750	0	0	0	750
Thallium	3,852	0	190	5	0	0	4,047
(M) Thiabendazole	0	2,160	1,460	271	0	0	3,891
(M) Thiobencarb	0	0	750	0	3,032	0	3,782
(M) Thiodicarb	0	0	0	5	500	0	505
(M) Thiophanate-methyl	0	0	2,677	0	0	0	2,677
(M) Thiosemicarbazide	0	0	0	0	0	0	0
Thiourea	0	0	11,917	761	4,269	0	16,947
Thiram	30,543	5	10,080	640	98,217	0	139,485
Thorium dioxide	0	0	0	2,600	0	0	2,600
Titanium tetrachloride	129,787	0	2,914	0	32,282	0	164,983
Toluene	24,457,543	76,070,848	20,995,221	849,352	892,000	5,168	123,270,132
Toluene-2,4-diisocyanate	1,400	23,160	11,636	0	611	0	36,807
Toluene-2,6-diisocyanate	0	3,705	1,546	0	153	0	5,404
Toluenediisocyanate (mixed isomers)	13,187	60,940	198,261	10	26,263	0	298,661
o-Toluidine	0	90,297	45,218	20,406	55	0	155,976
(M) Triadimefon	0	0	0	0	0	0	0
(M) Triallate	0	0	52,630	0	24,076	0	76,706
(M) Tribenuron methyl	0	0	5,144	0	0	0	5,144
(M) Tributyltin fluoride	0	0	0	0	0	0	0
(M) Tributyltin methacrylate	0	25	4,320	0	0	0	4,345
(M) S,S,S-Tributyltrithiophosphate	0	0	325	0	0	0	325
Trichlorfon	0	0	0	0	0	0	0
(M) Trichloroacetyl chloride	0	0	0	0	0	0	0
1,2,4-Trichlorobenzene	10,541	107,929	345,503	82,831	41,648	0	588,452
1,1,1-Trichloroethane	3,742,913	1,011,715	1,270,886	23,122	124,363	0	6,172,999
1,1,2-Trichloroethane	11,918,217	200,626	3,251,456	9,000	84	0	15,379,383
Trichloroethylene	8,487,722	1,145,534	1,021,403	15,073	57,670	0	10,727,402
Trichlorofluoromethane (CFC-11)	227,287	170,699	291,833	18	4,149	0	693,986
2,4,6-Trichlorophenol	0	0	0	0	0	0	0
(M) 1,2,3-Trichloropropane	9	0	10,017,000	0	0	0	10,017,009
(M) Triclopypyrrithylammonium salt	0	0	110	0	0	0	110
(M) Triethylamine	428,222	458,961	658,791	401,486	17,175	0	1,964,635
Trifluralin	0	5	82,914	5	24,490	500	107,914
(M) Triforine	0	0	250	0	0	0	250



Chapter 4 — 1995 TRI Releases and Transfers

Table 4-33. Releases and Transfers of All TRI Chemicals, 1995 (Alphabetically Ordered), Continued.

CAS Number ⁽⁷⁾	Chemical	Total Forms Number	Form As Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
95-63-6	1,2,4-Trimethylbenzene	773	57	2,568,850	4,904,405	8,432	1,042	43,400	7,526,129
639-58-7 (M)	Triphenyltin chloride	1	0	0	1	0	0	0	1
76-87-9 (M)	Triphenyltin hydroxide	3	1	5	255	0	0	0	260
51-79-6	Urethane	4	0	124	0	0	0	0	124
7440-62-2	Vanadium (fume or dust)	15	1	1,397	3,952	5	0	30,632	35,986
50471-44-8 (M)	Vinclozolin	2	1	0	0	0	0	0	0
108-05-4	Vinyl acetate	155	12	1,068,111	2,756,124	8,269	783,829	1,717	4,618,050
593-60-2	Vinyl bromide	2	0	43,460	11,470	0	0	0	54,930
75-01-4	Vinyl chloride	48	1	319,592	722,011	525	33	1	1,042,162
75-35-4	Vinylidene chloride	23	2	52,166	125,343	392	0	0	177,901
108-38-3	m-Xylene	58	0	378,028	348,543	892	569	13,318	741,350
95-47-6	o-Xylene	65	2	765,610	564,109	869	569	485	1,331,642
106-42-3	p-Xylene	37	2	1,104,441	1,819,398	532	569	29,401	2,954,341
1330-20-7	Xylene (mixed isomers)	3,233	93	22,439,619	73,072,799	33,806	93,396	100,323	95,739,943
87-62-7	2,6-Xylidine	4	0	54	221	0	0	0	275
7440-66-6	Zinc (fume or dust)	420	35	757,286	1,251,878	53,264	0	6,402,741	8,465,169
—	Zinc compounds	2,509	437	1,851,792	2,912,569	1,129,803	212,844	81,541,683	87,648,691
12122-67-7	Zineb	1	1	0	0	0	0	0	0
—	Mixtures and other trade name products	39	5	171,675	208,655	83,371	0	0	463,701
—	Trade secrets	13	11	250	5	0	0	0	255
	Total	73,311	6,437	385,094,609	1,177,227,504	136,315,624	234,979,709	275,131,965	2,208,749,411



Table 4-33, Cont.

Chemical	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers Pounds
1,2,4-Trimethylbenzene	1,072,018	2,928,174	325,861	176,427	41,136	0	4,543,616
(N) Triphenyltin chloride	0	0	0	0	0	0	0
(N) Triphenyltin hydroxide	0	5	250	0	250	0	505
Urethane	0	0	0	1,165	3,750	0	4,915
Vanadium (fume or dust)	5,618	0	7	310	16,873	0	22,808
(N) Vinclozolin	0	0	1,030	0	0	0	1,030
Vinyl acetate	533,326	6,534,074	8,913,415	274,652	41,783	0	16,297,250
Vinyl bromide	0	0	0	0	0	0	0
Vinyl chloride	134,144	20,853	80,223	308	15,645	0	251,173
Vinylidene chloride	55	102,442	86,499	301	260	0	189,557
m-Xylene	27,725	233,672	130,247	13,587	8,650	0	413,881
o-Xylene	60,208	1,848,523	465,724	381,025	1,152	0	2,756,632
p-Xylene	8,845	4,048	3,831	5,106	1,261	0	23,091
Xylene (mixed isomers)	43,833,814	70,575,100	14,954,567	531,491	894,676	25,055	130,814,703
2,6-Xylidine	0	0	22	236	0	0	258
Zinc (fume or dust)	78,719,849	29,564	6,464,257	34,668	3,525,346	0	88,773,684
Zinc compounds	228,004,256	397,958	10,603,153	545,830	97,510,725	3,570	337,065,492
Zineb	0	0	0	0	0	0	0
Mixtures and other trade name products	2,000	388,328	279,375	43,146	4,400	0	717,249
Trade secrets	0	0	0	0	0	0	0
Total	2,213,731,389	512,029,726	287,576,863	239,836,516	279,222,397	2,431,060	3,534,827,951

³⁷ Compound categories do have CAS numbers (—).³⁸ Newly reportable in 1995.³⁹ Transfers reported without valid waste management codes.

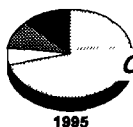


Table 4-34. Quantities of TRI Chemicals in Waste, by Chemical, 1995 (Alphabetically Ordered).

CAS Number ⁶⁹	Chemical	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
71751-41-2 (M)	Abamectin	0	0	0	0
30560-19-1 (M)	Acephate	10	0	0	0
75-07-0	Acetaldehyde	97,000	31,820	9,214,285	234,448
60-35-5	Acetamide	0	0	1,000	0
75-05-8	Acetonitrile	9,409,962	2,071,150	23,070,787	4,664,655
98-86-2	Acetophenone	920,000	9,710	26,049,642	301,212
62476-59-9 (M)	Acifluorfen, sodium salt	0	0	0	0
107-02-8	Acrolein	4,800	0	3,752,847	43,323
79-06-1	Acrylamide	4,037	0	820	43,304
79-10-7	Acrylic acid	3,339,863	34,800	26,544,419	5,033,613
107-13-1	Acrylonitrile	12,408,043	69,716	3,342,652	666,275
15972-60-8 (M)	Alachlor	0	0	0	5,481
116-06-3 (M)	Aldicarb	0	0	0	0
28057-48-9 (M)	d-trans-Allethrin	0	0	0	0
107-18-6	Allyl alcohol	189,517	0	1,531,138	363,377
107-05-1	Allyl chloride	520,000	0	186,000	1,756
7429-90-5	Aluminum (fume or dust)	38,530,991	25,563,086	0	164,604
1344-28-1	Aluminum oxide (fibrous forms)	25,100	15,612	0	9,991
20859-73-8 (M)	Aluminum phosphide	0	0	0	0
834-12-8 (M)	Ametryn	0	0	0	0
60-09-3	4-Aminoazobenzene	0	0	0	0
92-67-1	4-Aminobiphenyl	0	0	0	0
7664-41-7	Ammonia	262,512,857	12,941,288	43,263,891	99,379
62-53-3	Aniline	7,243,251	0	7,419,516	258,998
90-04-0	o-Anisidine	0	0	143	0
104-94-9	p-Anisidine	0	0	0	0
120-12-7	Anthracene	205,705	20,744	183,121	78,030
7440-36-0	Antimony	3,201,021	5,590,630	0	1,730
—	Antimony compounds	5,321,228	3,245,157	0	50,997
7440-38-2	Arsenic	1,072,279	189,886	7,700	496
—	Arsenic compounds	2,445,203	293,200	0	231
1332-21-4	Asbestos (friable)	291,000	0	0	0
1912-24-9 (M)	Atrazine	73	0	0	0
7440-39-3	Barium	14,719	176,493	0	102
—	Barium compounds	26,546,329	1,837,639	200	68,928
22781-23-3 (M)	Bendiocarb	560	0	0	0
1861-40-1 (M)	Benfluralin	4,205	0	0	0
17804-35-2 (M)	Benomyl	0	0	0	0
98-87-3	Benzal chloride	0	0	0	260,000
71-43-2	Benzene	57,793,001	420,033	20,222,877	1,579,908
98-07-7	Benzoic trichloride	0	0	0	3,001
98-88-4	Benzoyl chloride	0	0	0	80
94-36-0	Benzoyl peroxide	4,600	10,800	863	1,520
100-44-7	Benzyl chloride	1,000	0	25,481	430,300
7440-41-7	Beryllium	39,689	11,363	0	0
—	Beryllium compounds	7	23,880	0	0
82657-04-3 (M)	Bifenthrin	0	0	0	0
92-52-4	Biphenyl	268,053	156,081	1,088,381	346,055
111-91-1	Bis(2-chloroethoxy)methane	0	0	0	0
111-44-4	Bis(2-chloroethyl) ether	0	146,118	302,700	284,253
542-88-1	Bis(chloromethyl) ether	0	0	0	0
108-60-1	Bis(2-chloro-1-methylethyl) ether	5,200,000	0	8,540,000	0
56-35-9 (M)	Bis(tributyltin) oxide	0	0	0	0
10294-34-5 (M)	Boron trichloride	5,000	0	0	0
7637-07-2 (M)	Boron trifluoride	0	0	0	0



Table 4-34.

Chemical	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production- related Waste Pounds	Non-Production related Waste Pounds
(N) Abamectin	106	5,582	16	5,704	0
(N) Acephate	183,000	15,728	1,409	200,147	0
Acetaldehyde	14,463,440	1,835,882	14,420,034	40,296,909	1,681
Acetamide	0	88	920,000	921,088	0
Acetonitrile	9,254,608	5,758,679	29,418,605	83,648,446	1,073
Acetophenone	1,313,510	35,062	886,301	29,515,437	517
(N) Acifluorfen, sodium salt	600	1,272	65	1,937	0
Acrolein	5,167,867	11,361	154,576	9,134,774	85
Acrylamide	310,244	206,563	6,146,220	6,711,188	3,980
Acrylic acid	26,778,304	471,790	8,396,830	70,599,619	3,391
Acrylonitrile	12,222,098	1,125,461	6,508,254	36,342,499	11,189
(N) Alachlor	120,000	217,179	3,930	346,590	30,000
(N) Aldicarb	580	20,011	3,472	24,063	0
(N) d-trans-Allethrin	0	0	0	0	0
Allyl alcohol	1,404,321	422,499	371,288	4,282,140	131
Allyl chloride	750,979	412,357	51,166	1,922,258	65
Aluminum (fume or dust)	15,628,491	319,819	8,091,320	88,298,311	690
Aluminum oxide (fibrous forms)	21,448	90,428	2,389,946	2,552,525	2
(N) Aluminum phosphide	0	0	0	0	0
(N) Ametryn	108,500	12,502	256	121,258	0
4-Aminoazobenzene	3	0	64	67	0
4-Aminobiphenyl	91,000	0	2	91,002	0
Ammonia	313,392,551	18,693,194	195,255,566	846,158,726	1,061,025
Aniline	3,746,207	1,355,787	1,455,898	21,479,657	1,147
o-Anisidine	14,704	5,100	1,061	21,008	0
p-Anisidine	0	9	9	18	0
Anthracene	1,693,057	5,886	114,414	2,300,957	34,347
Antimony	819,533	97,189	120,088	9,830,191	459
Antimony compounds	79,809	943,428	3,933,804	13,574,423	27,805
Arsenic	13,030	45,969	60,567	1,389,927	18,749
Arsenic compounds	227,628	1,302,052	2,468,741	6,737,055	93,383
Asbestos (friable)	1,548,870	1,102	3,514,250	5,355,222	176,195
(N) Atrazine	556,057	180,643	685,144	1,421,917	17,000
Barium	43,195	37,540	584,639	856,688	0
Barium compounds	6,233,139	3,488,662	5,320,671	43,495,568	33,032
(N) Bendiocarb	0	0	560	1,120	0
(N) Benfluralin	6,200	175	16,888	27,468	0
(N) Benomyl	482,000	122,000	0	604,000	0
Benzal chloride	2,800	0	1,105	263,905	0
Benzene	57,004,776	1,965,720	9,664,693	148,651,008	65,835
Benzoic trichloride	150,000	32	6,242	159,275	0
Benzoyl chloride	1,676,545	615,127	18,213	2,309,965	0
Benzoyl peroxide	54,214	40,198	16,439	128,634	0
Benzyl chloride	256,947	10,947	21,484	746,159	80
Beryllium	780	423	28,028	80,283	0
Beryllium compounds	0	1,011	24,661	49,559	0
(N) Bifenthrin	0	10	10	20	0
Biphenyl	963,993	600,819	891,284	4,314,666	11,635
Bis(2-chloroethoxy)methane	0	0	12,796	12,796	0
Bis(2-chloroethyl) ether	0	52,488	551	786,110	0
Bis(chloromethyl) ether	13,000	0	0	13,000	0
Bis(2-chloro-1-methylethyl) ether	10,840,000	0	6,100	24,586,100	1
(N) Bis(tributyltin) oxide	0	0	47,338	47,338	418
(N) Boron trichloride	200	0	1	5,201	0
(N) Boron trifluoride	425,701	1,027	17,919	444,647	4



Table 4-34. Quantities of TRI Chemicals in Waste, by Chemical, 1995 (Alphabetically Ordered), Continued.

CAS Number ⁶⁹	Chemical	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
314-40-9 (M)	Bromacil	5	0	0	0
7726-95-6 (M)	Bromine	4,960,000	0	0	0
35691-65-7 (M)	1-Bromo-1-(bromomethyl)-1,3-propanedicarbonitrile	0	0	0	0
353-59-3	Bromochlorodifluoromethane (Halon 1211)	282,800	0	0	0
74-83-9	Bromomethane	165,182	0	101,000	380
52-51-7 (M)	2-Bromo-2-nitropropane-1,3-diol	0	0	0	0
75-63-8	Bromotrifluoromethane (Halon 1301)	200,661	0	0	0
1689-84-5 (M)	Bromoxynil	0	0	0	0
1689-99-2 (M)	Bromoxynil octanoate	0	0	0	0
357-57-3 (M)	Brucine	0	0	0	0
106-99-0	1,3-Butadiene	5,513,939	13,652,736	32,353,920	34,519
141-32-2	Butylacrylate	173,995	207,325	4,059,201	1,143,139
71-36-3	n-Butyl alcohol	9,440,091	3,334,340	24,665,663	8,579,289
78-92-2	sec-Butyl alcohol	748,440	24,774	13,041,102	6,275,927
75-65-0	tert-Butyl alcohol	466,023	2,256	64,310,733	27,469,833
106-88-7	1,2-Butylene oxide	0	990	0	330,194
123-72-8	Butyraldehyde	0	1,300	2,545,861	22,000
7440-43-9	Cadmium	1,471,697	535,920	29,191	633
—	Cadmium compounds	8,221,508	1,403,793	0	1,082
156-62-7	Calcium cyanamide	0	0	0	0
133-06-2	Captan	5,070	0	0	0
63-25-2	Carbaryl	36,618	0	0	0
1563-66-2 (M)	Carbofuran	0	0	0	1
75-15-0	Carbon disulfide	20,874,450	18	5,775,132	368,509
56-23-5	Carbon tetrachloride	1,677,422	365,067	317,149	50,068
463-58-1	Carbonyl sulfide	0	0	1,508,252	0
5234-68-4 (M)	Carboxin	2,817	0	0	0
120-80-9	Catechol	0	0	7,059,290	94,995
57-74-9	Chlordane	0	0	0	0
115-28-6 (M)	Chlorendic acid	0	0	0	0
90982-32-4 (M)	Chlorimuron ethyl	0	0	0	0
7782-50-5	Chlorine	344,997,609	1,878,625	499	1,585
10049-04-4	Chlorine dioxide	2,446,060	0	0	0
79-11-8	Chloroacetic acid	25,013	0	0	0
4080-31-3 (M)	1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride	2,700	0	0	0
106-47-8 (M)	p-Chloroaniline	0	0	0	540
108-90-7	Chlorobenzene	9,123,869	1,016,982	1,978,757	1,366,145
75-68-3	1-Chloro-1,1-difluoroethane (HCFC-142b)	52,560	0	0	320
75-45-6	Chlorodifluoromethane (HCFC-22)	2,401,421	242,086	0	27,002
75-00-3	Chloroethane	2,321,094	155,726	13,500,359	45,855
67-66-3	Chloroform	5,138,816	175,713	17,187,219	103,558
74-87-3	Chloromethane	2,803,788	650	4,421,896	4,505
107-30-2	Chloromethyl methyl ether	0	0	0	0
563-47-3 (M)	3-Chloro-2-methyl-1-propene	0	0	0	0
—	Chlorophenols	2,919,075	0	0	6,400
76-06-2 (M)	Chloropicrin	9,981	0	0	54
126-99-8	Chloroprene	0	480,972	26,280	9,105
354-25-6	1-Chloro-1,1,2,2-tetrafluoroethane (HCFC-124a)	0	0	0	0
2837-89-0	2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)	178,798	239,200	0	0



Table 4-34, Cont.

Chemical	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production- related Waste Pounds	Non-Production related Waste Pounds
(N) Bromacil	30,687	27,829	27,947	86,468	0
(N) Bromine	14,808,669	2,924,242	104,735	22,797,646	24
(N) 1-Bromo-1-(bromomethyl)-1,3-propanedicarbonitrile	0	10,957	0	10,957	0
Bromochlorodifluoromethane (Halon 1211)	0	0	4,832	287,632	0
Bromomethane	4,876,073	0	2,578,001	7,720,636	0
(N) 2-Bromo-2-nitropropane-1,3-diol	0	0	0	0	0
Bromotrifluoromethane (Halon 1301)	0	0	36,155	236,816	555
(N) Bromoxynil	0	0	996	996	0
(N) Bromoxynil octanoate	0	173	13,689	13,862	0
(N) Brucine	0	0	0	0	0
1,3-Butadiene	57,615,835	96,310	2,742,095	112,009,354	199,348
Butyl acrylate	4,494,846	228,382	409,817	10,716,705	5,264
n-Butyl alcohol	37,798,573	3,463,000	28,128,326	115,409,282	52,280
sec-Butyl alcohol	2,249,797	99,596	1,079,469	23,519,105	2,800
tert-Butyl alcohol	2,446,633	1,794,551	2,236,105	98,726,134	2,073
1,2-Butylene oxide	329,270	93	10,804	671,351	0
Butyraldehyde	1,982,004	169,714	440,778	5,161,657	7
Cadmium	90,725	45,384	72,325	2,245,875	12,911
Cadmium compounds	125,591	182,312	1,699,126	11,633,412	11,697
Calcium cyanamide	0	0	6	6	0
Captan	9,834	491	7,479	22,874	0
Carbaryl	467,593	7,885	32,697	544,793	0
(N) Carbofuran	3	47,158	8,222	55,384	1
Carbon disulfide	12,058,530	366,465	84,737,655	124,180,759	62,790
Carbon tetrachloride	52,783,870	730,882	436,696	56,361,154	34,522
Carbonyl sulfide	13,567,848	16,000	18,425,261	33,517,361	1
(N) Carboxin	0	14	436	3,267	0
Catechol	1,476,857	54,221	68,027	8,753,390	2,772
Chlordane	5,150	95	845	6,090	0
(N) Chlorendic acid	0	488	6	494	0
(N) Chlorimuron ethyl	0	5,838	1	5,839	0
Chlorine	220,202,317	1,178,861	66,287,323	634,546,819	13,468
Chlorine dioxide	40,198,997	0	1,310,000	43,955,057	3,932
Chloroacetic acid	1,317,594	2,726	17,512	1,362,845	0
(N) 1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride	600	4,660	3,570	11,530	0
(N) p-Chloroaniline	0	120,301	940	121,781	0
Chlorobenzene	11,231,684	1,503,368	1,189,462	27,410,267	20,610
1-Chloro-1,1-difluoroethane (HCFC-142b)	304,070	26,330	6,908,807	7,292,087	459
Chlorodifluoromethane (HCFC-22)	401,771	259,532	12,224,243	15,556,055	190,653
Chloroethane	28,073,797	491,378	2,760,574	47,348,783	8,570
Chloroform	17,350,603	2,061,635	10,566,279	52,583,823	27,205
Chloromethane	14,357,076	240,406	4,181,357	26,009,678	7,642
Chloromethyl methyl ether	15,900	0	2,909	18,809	0
(N) 3-Chloro-2-methyl-1-propene	544,134	14,819	19,629	578,582	10
Chlorophenols	237,484	26,212	109,847	3,299,018	1,776
(N) Chloropicrin	441	34,387	10,434	55,297	0
Chloroprene	4,233,572	138,421	1,050,975	5,939,325	515
1-Chloro-1,1,2,2-tetrafluoroethane (HCFC-124a)	1,725	0	504,011	505,736	0
2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)	193,194	35,816	753,296	1,400,304	400

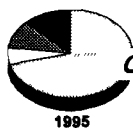


Table 4-34. Quantities of TRI Chemicals in Waste, by Chemical, 1995 (Alphabetically Ordered), Continued.

CAS Number	Chemical	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
1897-45-6	Chlorothalonil	5,339	0	0	2,294
75-88-7	Ⓜ 2-Chloro-1,1,1-trifluoroethane (HCFC-133a)	0	0	0	0
75-72-9	Ⓜ Chlorotrifluoromethane (CFC-13)	0	0	0	0
5598-13-0	Ⓜ Chlorpyrifos methyl	400	0	0	0
64902-72-3	Ⓜ Chlorsulfuron	0	0	0	0
7440-47-3	Chromium	29,686,406	96,697,048	9,781,278	51,738
—	Chromium compounds	36,393,548	33,156,558	44,280	68,448
6459-94-5	Ⓜ C.I. Acid Red 114	0	0	0	0
569-64-2	C.I. Basic Green 4	0	0	0	0
989-38-8	C.I. Basic Red 1	0	0	0	54
28407-37-6	Ⓜ C.I. Direct Blue 218	5	0	0	0
16071-86-6	C.I. Direct Brown 95	0	0	0	0
2832-40-8	C.I. Disperse Yellow 3	0	0	0	0
81-88-9	C.I. Food Red 15	0	0	0	0
97-56-3	C.I. Solvent Yellow 3	0	0	0	0
7440-48-4	Cobalt	3,561,811	11,634,905	0	1
—	Cobalt compounds	222,882	1,393,143	0	6,087
7440-50-8	Copper	610,354,812	517,636,686	506	48,192
—	Copper compounds	244,873,532	194,175,424	0	31,078
8001-58-9	Creosote	29,447,471	2,180	6,100	94,871
120-71-8	p-Cresidine	0	0	0	0
108-39-4	m-Cresol	2,309,373	1,500,001	615,425	17,910
95-48-7	o-Cresol	171,098	76	304,801	321
106-44-5	p-Cresol	137,136	900,001	454,288	42,641
1319-77-3	Cresol (mixed isomers)	1,052,270	187,427	5,045,270	617,974
4170-30-3	Ⓜ Crotonaldehyde	0	0	0	0
98-82-8	Cumene	17,290,479	60,160	6,815,013	1,378,039
80-15-9	Cumene hydroperoxide	0	0	0	6
135-20-6	Cupferron	0	0	0	0
21725-46-2	Ⓜ Cyanazine	0	0	0	0
—	Cyanide compounds	664,976	22,526	19,000	3,523
1134-23-2	Ⓜ Cycloate	0	0	0	0
110-82-7	Cyclohexane	54,772,521	1,585,361	10,345,060	5,144,885
108-93-0	Ⓜ Cyclohexanol	0	0	677,199	9,673
68359-37-5	Ⓜ Cyfluthrin	0	0	0	0
94-75-7	2,4-D (acetic acid)	29,200	0	0	0
533-74-4	Ⓜ Dazomet	0	0	0	0
53404-60-7	Ⓜ Dazomet, sodium salt	0	0	0	0
94-82-6	Ⓜ 2,4-DB	0	0	0	0
1929-73-3	Ⓜ 2,4-D butoxyethyl ester	0	0	0	0
94-80-4	Ⓜ 2,4-D butyl ester	0	0	0	0
1163-19-5	Decabromodiphenyl oxide	992,673	134,479	0	18,686
13684-56-5	Ⓜ Desmedipham	0	0	0	0
1928-43-4	Ⓜ 2,4-D 2-Ethylhexyl ester	36,531	0	0	0
101-80-4	4,4'-Diaminodiphenyl ether	0	0	0	0
95-80-7	2,4-Diaminotoluene	0	0	0	0
25376-45-8	Diaminotoluene (mixed isomers)	0	0	755,917	386,996
333-41-5	Ⓜ Diazinon	21,330	0	0	3,001
132-64-9	Dibenzofuran	74,646	25,036	113	176
106-93-4	1,2-Dibromoethane	0	0	60	17
84-74-2	Dibutyl phthalate	51,458	26,123	1,060,538	169,757
1918-00-9	Ⓜ Dicamba	510	0	0	0
99-30-9	Ⓜ Dichloran	0	0	0	0
95-50-1	1,2-Dichlorobenzene	5,527,161	3,626,496	344,610	763,438



1995

Table 4-34, Cont.

Chemical	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production- related Waste Pounds	Non-Production related Waste Pounds
Chlorothalonil	24,716	139,966	102,279	274,594	1
(M) 2-Chloro-1,1,1-trifluoroethane (HCFC-133a)	0	0	35,608	35,608	0
(M) Chlorotrifluoromethane (CFC-13)	0	0	30	30	0
(M) Chlorpyrifos methyl	0	6,095	6,402	12,897	0
(M) Chlorsulfuron	0	3,444	1	3,445	0
Chromium	99,424,333	1,656,220	5,992,348	243,289,371	41,330
Chromium compounds	94,207,090	2,831,432	36,753,528	203,454,884	592,087
(M) C.I. Acid Red 114	0	0	0	0	0
C.I. Basic Green 4	110	499	10	619	0
C.I. Basic Red 1	0	289	668	1,011	0
(M) C.I. Direct Blue 218	619	22,507	1,411	24,542	0
C.I. Direct Brown 95	0	0	0	0	0
C.I. Disperse Yellow 3	1,061	5,189	1,410	7,660	0
C.I. Food Red 15	0	0	0	0	0
C.I. Solvent Yellow 3	0	0	0	0	0
Cobalt	379,265	85,211	230,980	15,892,173	0
Cobalt compounds	1,396,977	93,278	504,324	3,616,691	4,230
Copper	42,487,503	1,771,218	10,992,817	1,183,291,734	91,982
Copper compounds	26,660,346	2,419,861	49,569,311	517,729,552	1,323,104
Creosote	163,131	298,027	3,184,128	33,195,908	322,988
p-Cresidine	0	51,611	6,806	58,417	3,400
m-Cresol	329,024	91,159	737,708	5,600,600	151
o-Cresol	184,032	125,072	606,682	1,392,082	116
p-Cresol	226,234	992,008	393,974	3,146,282	100
Cresol (mixed isomers)	8,510,981	1,143,472	2,187,190	18,744,584	6,809
(M) Crotonaldehyde	202,400	0	498,820	701,220	0
Cumene	7,062,011	169,181	2,058,896	34,833,779	2,265
Cumene hydroperoxide	482,755	21,434	434,840	939,035	0
Cupferron	0	5,648	0	5,648	0
(M) Cyanazine	545,000	8,100	3,887	556,987	0
Cyanide compounds	9,085,890	688,455	5,653,889	16,138,259	2,914
(M) Cycloate	2,000	6,001	1,346	9,347	0
Cyclohexane	23,803,593	1,256,854	8,408,134	105,316,408	123,181
(M) Cyclohexanol	153,667	13,076	3,838,896	4,692,511	0
(M) Cyfluthrin	989	890	20	1,899	0
2,4-D (acetic acid)	23,780	24,490	27,595	105,065	6,186
(M) Dazomet	20,110	1,178	3,542	24,830	0
(M) Dazomet, sodium salt	56	7,807	0	7,863	0
(M) 2,4-DB	0	217	290	507	0
(M) 2,4-D butoxyethyl ester	0	1,600	318	1,918	0
(M) 2,4-D butyl ester	600	0	3	603	0
Decabromodiphenyl oxide	32,138	320,331	916,688	2,414,995	3,794
(M) Desmedipham	0	0	0	0	0
(M) 2,4-D 2-Ethylhexyl ester	0	10,318	5,468	52,317	0
4,4'-Diaminodiphenyl ether	4,929	380,289	377	385,595	0
2,4-Diaminotoluene	7,192	29,774	655	37,621	0
Diaminotoluene (mixed isomers)	362,357	1,923,183	48,109	3,476,562	3,550
(M) Diazinon	66,150	4,596	12,433	107,510	0
Dibenzofuran	405,125	1,471	37,428	543,995	13,217
1,2-Dibromoethane	34,174	72,467	11,740	118,458	0
Dibutyl phthalate	314,761	115,184	402,817	2,140,638	173,700
(M) Dicamba	0	29	126,662	127,201	0
(M) Dichloran	50	25	10	85	0
1,2-Dichlorobenzene	172,717	1,999,033	340,946	12,774,401	153

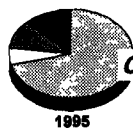


Table 4-34. Quantities of TRI Chemicals in Waste, by Chemical, 1995 (Alphabetically Ordered), Continued.

CAS Number ³⁹	Chemical	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
541-73-1	1,3-Dichlorobenzene	5,068	1,291	0	0
106-46-7	1,4-Dichlorobenzene	5,355,345	34,882	42,157	11,053
25321-22-6	Dichlorobenzene (mixed isomers)	0	0	266,997	5,165
91-94-1	3,3'-Dichlorobenzidine	0	0	0	22,000
612-83-9	3,3'-Dichlorobenzidine dihydrochloride	0	0	0	0
64969-34-2	3,3'-Dichlorobenzidine sulfate	0	0	0	0
75-27-4	Dichlorobromomethane	0	0	0	0
764-41-0	1,4-Dichloro-2-butene	0	0	0	13,000
110-57-6	trans-1,4-Dichloro-2-butene	0	0	0	0
1649-08-7	1,2-Dichloro-1,1-difluoroethane (HCFC-132b)	0	0	0	0
75-71-8	Dichlorodifluoromethane (CFC-12)	817,411	466,714	408,747	225
107-06-2	1,2-Dichloroethane	92,770,824	16,741,715	32,517,232	973,162
540-59-0	1,2-Dichloroethylene	310,000	6,100	2,871,400	0
1717-00-6	1,1-Dichloro-1-fluoroethane (HCFC-141b)	5,423,772	381,393	0	109,148
75-43-4	Dichlorofluoromethane (HCFC-21)	0	0	0	7,200
75-09-2	Dichloromethane	84,885,000	14,102,431	5,240,223	3,331,375
507-55-1	1,3-Dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb)	100	0	0	0
422-56-0	3,3-Dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca)	60	0	0	0
120-83-2	2,4-Dichlorophenol	1,460	0	3	0
78-87-5	1,2-Dichloropropane	56,000,000	0	28,380,000	0
10061-02-6	trans-1,3-Dichloropropene	0	0	11,000,000	0
78-88-6	2,3-Dichloropropene	6,100,000	1	4,200,000	0
542-75-6	1,3-Dichloropropylene	4,892,986	470	11,930,000	123
76-14-2	Dichlorotetrafluoroethane (CFC-114)	19,819	14,634	0	0
34077-87-7	Dichlorotrifluoroethane	0	0	0	0
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (HCFC-123)	253,000	1,304	0	0
62-73-7	Dichlorvos	33	0	0	297
115-32-2	Dicofol	150	0	0	0
77-73-6	Dicyclopentadiene	514,277	265	1,782,272	536,332
111-42-2	Diethanolamine	27,718	55,890	102,766	732,863
117-81-7	Di-(2-ethylhexyl) phthalate	2,725,753	6,173,220	100,013	258,725
64-67-5	Diethyl sulfate	0	6,400,000	0	415
35367-38-5	Diisobenzurone	0	0	0	0
94-58-6	Dihydrosafrole	0	0	0	0
—	Diisocyanates	816,798	340,442	143,840	338,158
55290-64-7	Dimethipin	0	0	0	0
60-51-5	Dimethoate	200	0	0	0
119-90-4	3,3'-Dimethoxybenzidine	0	0	0	0
20325-40-0	3,3'-Dimethoxybenzidine dihydrochloride	0	0	0	0
124-40-3	Dimethylamine	675,202	0	21,170	1,800
2300-66-5	Dimethylamine dicamba	7,981	0	0	0
121-69-7	N,N-Dimethylaniline	50,535	0	0	745,242
2524-03-0	Dimethyl chlorothiophosphate	0	0	0	0
68-12-2	N,N-Dimethylformamide	4,089,418	389,337	8,558,816	3,353,944
57-14-7	1,1-Dimethylhydrazine	0	57	0	0
105-67-9	2,4-Dimethylphenol	37,140	30,368	1,573,273	50,362
576-26-1	2,6-Dimethylphenol	7,200	0	94,400	0



1995

Table 4-34, Cont.

Chemical	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/Disposed of Pounds	Total Production-related Waste Pounds	Non-Production related Waste Pounds
1,3-Dichlorobenzene	10	3,989	8,079	18,437	36
1,4-Dichlorobenzene	73,030	623,067	250,647	6,390,181	1,606
Dichlorobenzene (mixed isomers)	79,032	3,684	5,452	360,330	0
3,3'-Dichlorobenzidine	14,000	1,600	2,701	40,301	0
(M) 3,3'-Dichlorobenzidine dihydrochloride	12,797	22,000	0	34,797	0
(M) 3,3'-Dichlorobenzidine sulfate	1,300	2,400	0	3,700	0
Dichlorobromomethane	0	0	2,300	2,300	0
1,4-Dichloro-2-butene	3,300,000	312,500	8,450	3,633,950	0
(M) trans-1,4-Dichloro-2-butene	0	0	137	137	0
(M) 1,2-Dichloro-1,1-difluoroethane (HCFC-132b)	98,000	22,000	1,000	121,000	0
Dichlorodifluoromethane (CFC-12)	126,167	114,628	3,203,159	5,137,051	18,429
1,2-Dichloroethane	74,728,291	1,630,211	1,258,759	220,620,194	23,294
1,2-Dichloroethylene	4,680,089	1,984	8,761	7,878,334	121
1,1-Dichloro-1-fluoroethane (HCFC-141b)	2,018,829	836,420	11,130,699	19,900,261	38,945
(M) Dichlorofluoromethane (HCFC-21)	1,586	23,800	204,492	237,078	0
Dichloromethane	25,514,607	11,789,474	57,170,005	202,033,115	70,170
(M) 1,3-Dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb)	0	0	400	500	0
(M) 3,3-Dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca)	0	0	300	360	0
2,4-Dichlorophenol	336,936	0	19,720	358,119	0
1,2-Dichloropropane	11,573,182	7,768	620,353	96,581,303	1,200
(M) trans-1,3-Dichloropropene	0	0	250	11,000,250	0
2,3-Dichloropropene	1,960,000	510,000	4,253	12,774,254	0
1,3-Dichloropropylene	969,916	2,481	31,694	17,827,670	240
Dichlorotetrafluoroethane (CFC-114)	1,608,479	38,271	1,018,687	2,699,890	0
Dichlorotrifluoroethane	716,409	0	968	717,377	0
2,2-Dichloro-1,1,1-trifluoroethane (HCFC-123)	18,400	24,465	113,218	410,387	0
Dichlorvos	10	536	550	1,426	24
Dicofol	0	95	282	527	0
(M) Dicyclopentadiene	466,201	169,885	331,251	3,800,483	275
Diethanolamine	2,841,679	2,015,226	1,217,248	6,993,390	25,342
Di-(2-ethylhexyl) phthalate	526,271	348,889	3,641,030	13,773,901	341
Diethyl sulfate	3,370	4,702	7,131	6,415,618	0
(M) Diflubenzuron	0	0	0	0	0
Dihydrosafrole	10	999	0	1,009	0
(M) Diisocyanates	703,339	1,156,684	884,269	4,383,530	1,231
(M) Dimethipin	0	0	0	0	0
(M) Dimethoate	0	242	1,900	2,342	0
3,3'-Dimethoxybenzidine	0	0	0	0	0
(M) 3,3'-Dimethoxybenzidine dihydrochloride	50	1	10	61	0
(M) Dimethylamine	2,088,241	223,723	564,264	3,574,400	0
(M) Dimethylamine dicamba	0	0	803	8,784	0
N,N-Dimethylaniline	2,154	205,028	104,616	1,107,575	0
(M) Dimethyl chlorothiophosphate	0	0	51,727	51,727	0
(M) N,N-Dimethylformamide	14,642,854	2,632,321	3,599,339	37,266,029	205
1,1-Dimethylhydrazine	3,639	10	822	4,528	0
2,4-Dimethylphenol	397,965	75,967	131,280	2,296,355	24
(M) 2,6-Dimethylphenol	4,790	14,200	35,821	156,411	6



Table 4-34. Quantities of TRI Chemicals in Waste, by Chemical, 1995 (Alphabetically Ordered), Continued.

CAS Number	Chemical	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
131-11-3	Dimethyl phthalate	4,288	800	253,605	69,549
77-78-1	Dimethyl sulfate	0	171,230	1	0
99-65-0	m-Dinitrobenzene	0	0	0	0
528-29-0	o-Dinitrobenzene	0	0	0	0
100-25-4	p-Dinitrobenzene	0	0	0	0
88-85-7	(M) Dinitrobutylphenol	0	0	263,629	0
534-52-1	4,6-Dinitro-o-cresol	0	0	452,120	410
51-28-5	2,4-Dinitrophenol	0	0	556,712	9
121-14-2	2,4-Dinitrotoluene	0	0	42,345	9
606-20-2	2,6-Dinitrotoluene	0	0	6,160	1
25321-14-6	Dinitrotoluene (mixed isomers)	0	0	0	9,100
39300-45-3	(M) Dinocap	0	0	0	0
123-91-1	1,4-Dioxane	74,293	9,124	1,975,960	1,196,352
122-39-4	(M) Diphenylamine	6,755	11,600	1,100,115	14,471
2164-07-0	(M) Dipotassium endothall	0	0	0	0
138-93-2	(M) Disodium cyanodithioimido-carbonate	0	0	0	0
330-54-1	(M) Diuron	300	0	0	2
2439-10-3	(M) Dodine	0	0	0	0
120-36-5	(M) 2,4-DP	5,633	0	0	0
2702-72-9	(M) 2,4-D sodium salt	0	0	0	0
106-89-8	Epichlorohydrin	13,263,282	0	4,331,319	171,461
13194-48-4	(M) Ethoprop	9	0	0	0
110-80-5	2-Ethoxyethanol	2,300	1,720	512,864	136,168
140-88-5	Ethyl acrylate	79	32,449	8,159,780	1,356,212
100-41-4	Ethylbenzene	24,681,329	4,966,474	41,595,948	11,097,743
541-41-3	Ethyl chloroformate	0	0	0	0
759-94-4	(M) Ethyl dipropylthiocarbamate	0	0	0	0
74-85-1	Ethylene	196,803,539	3	537,817,987	10,615,177
—	Ethylenebisdithiocarbamic acid, salts and esters	0	0	0	0
107-21-1	Ethylene glycol	335,924,640	128,105,152	5,926,147	13,140,499
151-56-4	Ethyleneimine	0	0	0	0
75-21-8	Ethylene oxide	179,940	307	16,940	0
96-45-7	Ethylene thiourea	1	840	0	0
75-34-3	Ethylidene dichloride	1,300,000	0	92,000	0
52-85-7	(M) Famphur	0	0	0	0
60168-88-9	(M) Fenarimol	0	0	0	0
13356-08-6	(M) Fenbutatin oxide	0	0	0	0
72490-01-8	(M) Fenoxycarb	0	0	0	0
39515-41-8	(M) Fenpropathrin	0	0	0	0
55-38-9	(M) Fenthion	0	0	0	0
51630-58-1	(M) Fenvalerate	0	0	0	0
2164-17-2	Fluometuron	0	0	0	2
7782-41-4	(M) Fluorine	0	0	0	0
69409-94-5	(M) Fluvalinate	0	0	0	0
133-07-3	(M) Folpet	0	80	0	0
72178-02-0	(M) Fomesafen	0	0	0	0
50-00-0	Formaldehyde	75,909,072	56,999	6,758,962	423,718
64-18-6	Formic acid	95,200	28	7,215,445	236,018
76-13-1	Freon 113	2,387,715	916,598	0	103,687
—	Glycol ethers	197,112,822	3,546,047	42,690,882	13,208,353
76-44-8	Heptachlor	0	0	0	0
118-74-1	Hexachlorobenzene	6,200	1	0	0
87-68-3	Hexachloro-1,3-butadiene	0	13	133,000	0



Table 4-34, Cont.

Chemical	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production- related Waste Pounds	Non-Production related Waste Pounds
Dimethyl phthalate	356,058	221,729	342,777	1,248,806	0
Dimethyl sulfate	352,841	3	5,535	529,610	0
m-Dinitrobenzene	764,156	0	86,519	850,675	0
o-Dinitrobenzene	444,156	0	1,287	445,443	0
p-Dinitrobenzene	29,589	0	83	29,672	0
(N) Dinitrobutyl phenol	34,226	110	881	298,846	0
4,6-Dinitro-o-cresol	18,000	13,950	7,380	491,860	0
2,4-Dinitrophenol	1,160,000	220	2,103	1,719,044	0
2,4-Dinitrotoluene	27,115	1,381	2,200	73,050	0
2,6-Dinitrotoluene	9,180	118	595	16,054	0
Dinitrotoluene (mixed isomers)	181,321	882,089	32,321	1,104,831	2,500
(N) Dinocap	0	0	0	0	0
1,4-Dioxane	1,019,104	305,315	789,838	5,369,986	229
(N) Diphenylamine	36,700	888,757	89,320	2,147,718	0
(N) Dipotassium endosulf	0	0	0	0	0
(N) Disodium cyanodithioimido- carbonate	0	0	0	0	0
(N) Diuron	0	5,711	6,568	12,581	0
(N) Dodine	0	270	5	275	0
(N) 2,4-DP	0	11	536	6,180	0
(N) 2,4-D sodium salt	5,139	0	0	5,139	0
Epichlorohydrin	4,191,552	952,542	333,225	23,243,381	20,516
(N) Ethoprop	0	9,404	174,442	183,855	0
2-Ethoxyethanol	1,253,431	433,278	212,067	2,551,828	36,526
Ethyl acrylate	484,067	96,769	362,962	10,492,318	24,056
Ethylbenzene	24,023,693	1,779,024	11,738,905	119,883,116	13,623
Ethyl chloroformate	3,300	0	1,980	5,280	10
(N) Ethyl dipropylthiocarbamate	6,500	33,010	12,476	51,986	0
Ethylene	494,275,764	2,162,284	33,662,423	1,275,337,177	765,679
Ethylenebisdithiocarbamic acid, salts and esters	0	7,250	1,500	8,750	0
Ethylene glycol	65,607,518	33,978,940	22,718,666	605,401,562	304,762
Ethyleneimine	34,000	0	3	34,003	0
Ethylene oxide	9,186,299	53,887	975,583	10,412,956	15,462
Ethylene thiourea	1	6,282	16,277	23,401	0
Ethylidene dichloride	1,532,000	19,149	40,156	2,983,305	15,005
(N) Famphur	0	3,758	0	3,758	0
(N) Fenarimol	0	310	650	960	0
(N) Fenbutatin oxide	0	0	0	0	0
(N) Fenoxycarb	0	0	0	0	0
(N) Fenprothrin	0	0	0	0	0
(N) Fenthion	0	0	0	0	0
(N) Fenvalerate	0	0	0	0	0
Fluometuron	0	16,900	5,646	22,548	13,000
(N) Fluorine	15,000	0	32,200	47,200	0
(N) Fluvalinate	0	0	0	0	0
(N) Folpet	801	290	1,962	3,133	0
(N) Fomesafen	0	0	200	200	0
Formaldehyde	68,512,747	2,903,807	19,442,087	174,007,392	267,631
Formic acid	101,110,480	1,541,252	12,249,050	122,447,473	8
Freon 113	250,260,926	580,524	2,603,442	256,852,892	30,129
Glycol ethers	30,296,466	11,934,464	45,399,102	344,188,136	35,257
Heptachlor	3,850	851	209	4,910	0
Hexachlorobenzene	2,865,008	428,747	18,549	3,318,505	19
Hexachloro-1,3-butadiene	6,778,662	164,970	4,444	7,081,089	660,211

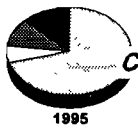


Table 4-34. Quantities of TRI Chemicals in Waste, by Chemical, 1995 (Alphabetically Ordered), Continued.

CAS Number	Chemical	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
77-47-4	Hexachlorocyclopentadiene	0	0	0	0
67-72-1	Hexachloroethane	4,800	0	1,232,400	75,132
110-54-3	(M) n-Hexane	10,600,491,367	6,839,739	25,189,411	14,350,839
51235-04-2	(M) Hexazinone	50	0	0	0
67485-29-4	(M) Hydramethylnon	0	0	0	0
302-01-2	Hydrazine	300	452	0	0
10034-93-2	Hydrazine sulfate	0	0	0	0
7647-01-0	Hydrochloric acid	195,275,346	24,738,101	100,650	1,759
74-90-8	Hydrogen cyanide	72,134	0	42,629,039	70
7664-39-3	Hydrogen fluoride	90,871,855	223,191	0	9,201
123-31-9	Hydroquinone	960	0	1,000,833	37,786
55406-53-6	(M) 3-Iodo-2-propynyl butyl-carbamate	1,755	2	0	1
13463-40-6	(M) Iron pentacarbonyl	0	0	0	0
78-84-2	Isobutyraldehyde	0	9,647	1,193,119	567,515
25311-71-1	(M) Isufenphos	690	0	0	0
67-63-0	Isopropyl alcohol (manufacturing)	443,494	49,488	4,252,331	283,421
80-05-7	4,4'-Isopropylidenediphenol	46,348	2,027	7,644,865	408,758
77501-63-4	(M) Lactofen	100	0	0	0
7439-92-1	Lead	211,375,723	62,287,184	49,836	5,677
—	Lead compounds	501,721,918	296,435,900	0	64,595
58-89-9	Lindane	326	0	0	0
330-55-2	(M) Linuron	0	0	0	1
554-13-2	(M) Lithium carbonate	18,000	0	0	0
121-75-5	(M) Malathion	197	0	0	0
108-31-6	Maleic anhydride	4,940	0	3,222,121	102,238
109-77-3	Malononitrile	0	0	0	0
12427-38-2	Maneb	525	0	0	3
7439-96-5	Manganese	31,782,895	90,442,930	0	141
—	Manganese compounds	155,293,544	60,699,381	0	199,783
93-65-2	(M) Mecoprop	15,614	0	0	0
149-30-4	(M) 2-Mercaptobenzothiazole	5,405	104,395	0	1,100
7439-97-6	Mercury	952,409	58,151	0	0
—	Mercury compounds	125,287	0	0	61
150-50-5	(M) Merphos	0	0	0	0
126-98-7	Methacrylonitrile	0	0	0	0
137-42-8	(M) Metham sodium	33,520	0	0	0
67-56-1	Methanol	492,833,206	23,223,080	366,054,613	94,915,113
94-74-6	(M) Methoxone	19,510	0	0	0
72-43-5	Methoxychlor	0	0	0	0
109-86-4	2-Methoxyethanol	3,925,200	0	240,658	1,885,948
96-33-3	Methyl acrylate	910,001	40,769	736,924	184,260
1634-04-4	Methyl tert-butyl ether	847,718	32,736	228,033	1,359,569
79-22-1	Methyl chlorocarbonate	0	0	0	0
101-14-4	4,4'-Methylenebis(2-chloro-aniline)	720	0	0	1,872
101-61-1	4,4'-Methylenebis(N,N-dimethyl) benzeneamine	0	0	0	0
74-95-3	Methylene bromide	677,059	0	0	0
101-77-9	4,4'-Methylenedianiline	2,300	0	17,801	17,405
78-93-3	Methyl ethyl ketone	66,061,415	20,954,201	112,381,304	43,476,004
60-34-4	Methylhydrazine	0	0	0	0
74-88-4	Methyl iodide	0	0	140	0
108-10-1	Methyl isobutyl ketone	52,706,103	16,319,598	26,719,664	17,938,076
624-83-9	Methyl isocyanate	0	0	0	0



Table 4-34, Cont.

Chemical	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production- related Waste Pounds	Non-Production related Waste Pounds
Hexachlorocyclopentadiene	272,865	24,908	11,083	308,856	76
Hexachloroethane	4,875,108	108,188	30,153	6,325,781	129,205
(M) n-Hexane	49,702,565	8,203,146	77,729,643	10,782,506,710	80,172
(M) Hexazinone	6,954	216,172	9,410	232,586	0
(M) Hydramethylnon	0	3	17	20	0
Hydrazine	42,532	8,920	36,768	88,972	0
Hydrazine sulfate	1,900	1,900	200,000	203,800	0
Hydrochloric acid	1,071,628,383	26,717,774	86,043,333	1,404,505,346	92,830
Hydrogen cyanide	23,704,645	10,443	3,140,214	69,556,545	27,155
Hydrogen fluoride	102,156,393	2,506,484	11,687,644	207,454,768	11,169
Hydroquinone	512,185	86,342	363,220	2,001,326	43
(M) 3-Iodo-2-propynyl butyl- carbamate	300	62,552	2,951	67,561	0
(M) Iron pentacarbonyl	0	0	1,379	1,379	0
Isobutyraldehyde	609,409	76,894	300,129	2,756,713	0
(M) Isfenphos	0	9,000	9,690	19,380	0
Isopropyl alcohol (manufacturing)	141,356	242,681	780,027	6,192,798	2
4,4'-Isopropylidenediphenol	824,095	127,321	880,856	9,934,270	121,310
(M) Lactofen	0	1	520	621	1,044
Lead	1,716,176	1,906,923	4,364,722	281,706,241	58,084
Lead compounds	28,985,340	7,362,779	26,160,607	860,731,139	3,696,880
Lindane	0	2,809	270	3,405	0
(M) Linuron	0	734	797	1,532	0
(M) Lithium carbonate	2,200	756	163,690	184,646	446,000
(M) Malathion	0	819	1,073	2,089	0
Maleic anhydride	38,357,136	1,155,486	348,219	43,190,140	22,336
Malononitrile	0	0	432,956	432,956	0
Maneb	0	8,800	7,861	17,189	0
Manganese	172,668	1,780,779	20,167,162	144,346,575	591
Manganese compounds	996,232	5,770,356	64,630,019	287,589,315	1,350,506
(M) Mecoprop	940	1,037	3,659	21,250	0
(M) 2-Mercaptobenzothiazole	72	1,026,848	427,294	1,565,114	630
Mercury	6,307	10,929	17,980	1,045,776	0
Mercury compounds	0	4,597	25,638	155,583	179,000
(M) Merphos	0	0	186	186	0
Methacrylonitrile	3,189	0	556,210	559,399	0
(M) Metham sodium	102	362	15,378	49,362	0
Methanol	950,248,895	119,060,755	253,158,326	2,299,493,988	303,968
(M) Methoxone	58	27	3,144	22,739	0
Methoxychlor	0	0	0	0	0
2-Methoxyethanol	3,353,957	1,228,013	859,203	11,492,979	0
Methyl acrylate	2,134,388	114,535	253,968	4,374,845	248
Methyl tert-butyl ether	2,883,726	520,913	3,513,681	9,386,376	117,436
Methyl chlorocarbonate	3,610	0	2,597	6,207	0
4,4'-Methylenebis(2-chloro- aniline)	36	6,385	37	9,050	0
4,4'-Methylenebis(N,N- dimethyl) benzeneamine	0	0	10	10	0
Methylene bromide	51,903	979	62,284	792,225	0
4,4'-Methylenedianiline	87,919	95,059	35,671	256,155	7
Methyl ethyl ketone	69,274,977	6,272,909	69,647,997	388,068,807	229,484
Methylhydrazine	20	5	400	425	0
Methyl iodide	19,376	760	40,187	60,463	59
Methyl isobutyl ketone	17,807,828	1,984,828	22,218,063	155,694,160	49,931
Methyl isocyanate	66,939	0	1,658	68,597	0

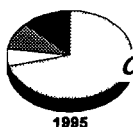


Table 4-34. Quantities of TRI Chemicals in Waste, by Chemical, 1995 (Alphabetically Ordered), Continued.

CAS Number	Chemical	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
556-61-6	Methyl isothiocyanate	0	0	0	62
75-86-5	2-Methylactonitrile	0	0	0	0
80-62-6	Methyl methacrylate	4,665,497	19,746	2,050,094	1,396,240
924-42-5	N-Methylolacrylamide	360	0	0	294
298-00-0	Methyl parathion	29	0	0	0
109-06-8	2-Methylpyridine	53,000	0	19,000	470
872-50-4	N-Methyl-2-pyrrolidone	1,477,378	6,459,937	182,638	2,406,025
21087-64-9	Metribuzin	0	0	0	0
7786-34-7	Mevinphos	0	0	0	0
90-94-8	Michler's ketone	0	0	0	436
2212-67-1	Molinate	0	0	0	0
1313-27-5	Molybdenum trioxide	6,243,774	2,513,003	0	3,530
76-15-3	Monochloropentafluoroethane (CFC-115)	8,600	2,200	0	0
88671-89-0	Myclobutanil	0	0	0	0
142-59-6	Nabam	0	0	0	0
300-76-5	Naled	0	0	0	0
91-20-3	Naphthalene	10,946,783	290,166	5,220,914	1,877,865
134-32-7	alpha-Naphthylamine	0	0	0	0
7440-02-0	Nickel	37,598,945	73,910,316	127	772
—	Nickel compounds	14,036,945	31,055,573	0	2,808
—	Nicotine and salts	0	100,961	0	0
1929-82-4	Nitrapyrin	0	43,000	0	0
—	Nitrate compounds	95,065,955	1,826,626	0	0
7697-37-2	Nitric acid	53,744,434	3,655,904	250,245	255
139-13-9	Nitrioltriactic acid	2,500	0	0	0
100-01-6	p-Nitroaniline	0	0	7	0
99-59-2	5-Nitro-o-anisidine	0	0	0	0
98-95-3	Nitrobenzene	3,677,200	0	1,479,583	77,668
55-63-0	Nitroglycerin	24,151	0	0	0
88-75-5	2-Nitrophenol	0	0	28,000	6
100-02-7	4-Nitrophenol	0	0	10,469	3
79-46-9	2-Nitropropane	0	520	140,000	81
86-30-6	N-Nitrosodiphenylamine	0	0	0	0
156-10-5	p-Nitrosodiphenylamine	0	0	8,600	15,000
59-89-2	N-Nitrosomorpholine	0	0	0	0
99-55-8	5-Nitro-o-toluidine	0	0	0	0
27314-13-2	Norflurazon	0	0	0	0
19044-88-3	Oryzalin	0	0	0	0
301-12-2	Oxydemeton methyl	0	0	0	0
19666-30-9	Oxydiazon	3,012	0	0	0
42874-03-3	Oxyfluorfen	0	0	0	0
10028-15-6	Ozone	0	0	0	0
123-63-7	Paraldehyde	0	0	47,460	11
1910-42-5	Paraquat dichloride	68	0	0	0
56-38-2	Parathion	0	0	0	0
1114-71-2	Pebulate	0	0	0	0
40487-42-1	Pendimethalin	300	0	0	0
76-01-7	Pentachloroethane	0	0	220,000	0
87-86-5	Pentachlorophenol	88,603	334	9,151	14,951
79-21-0	Peracetic acid	13,833	0	0	0
594-42-3	Perchloromethyl mercaptan	0	0	0	0
52645-53-1	Permethrin	0	0	0	5
85-01-8	Phenanthrene	162,334	1,190	35,001	18
108-95-2	Phenol	41,549,688	605,568	30,612,814	3,653,084

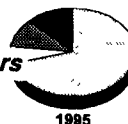


Table 4-34, Cont.

Chemical	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production- related Waste Pounds	Non-Production related Waste Pounds
(M) Methyl isothiocyanate	0	82	72	216	0
(M) 2-Methylacetonitrile	14,052	0	3,733	17,785	0
Methyl methacrylate	5,291,088	749,367	2,624,694	16,796,726	3,234
(M) N-Methylolacrylamide	7,929	4,373	1,969	14,925	0
(M) Methyl parathion	0	0	3,664	3,693	0
2-Methylpyridine	37,000	21,212	148,616	279,298	930
(M) N-Methyl-2-pyrrolidone	4,895,112	2,921,535	4,314,191	22,656,816	977
(M) Metribuzin	3,502	5,423	3,519	12,444	0
(M) Mevinphos	0	0	0	0	0
Michler's ketone	0	0	1,577	2,013	0
(M) Molinate	3,312	128,004	6,450	137,766	0
Molybdenum trioxide	19,964	318,593	1,589,138	10,688,002	21,235
Monochloropentafluoroethane (CFC-115)	257,501	24,651	278,151	571,103	0
(M) Myclobutanil	0	0	0	0	0
(M) Nabam	14,218	253	0	14,471	0
(M) Naled	1,000	2,600	0	3,600	9
Naphthalene	16,572,305	1,216,362	2,900,603	39,024,998	351,834
alpha-Naphthylamine	0	0	0	0	0
Nickel	100,523,204	1,032,243	2,760,989	215,826,596	19,001
Nickel compounds	2,457,216	1,328,154	7,918,711	56,799,407	332,578
(M) Nicotine and salts	275,790	278,974	631,859	1,287,584	0
(M) Nitrapyrin	0	0	128,628	171,628	0
(M) Nitrate compounds	22,708,717	53,578,970	145,078,559	318,258,827	14,793
Nitric acid	247,525,968	15,825,766	27,178,743	348,181,315	118,286
Nitrilotriacetic acid	969,141	1,872	2,935	976,448	0
(M) p-Nitroaniline	266	93,016	12,007	105,296	0
5-Nitro-o-anisidine	0	0	5	5	0
Nitrobenzene	1,297,715	638,980	354,503	7,525,649	391
Nitroglycerin	428,538	59,598	39,387	551,674	6
2-Nitrophenol	120,000	23,311	83	171,400	0
4-Nitrophenol	65,000	574,800	950	651,222	0
2-Nitropropane	63,028	0	34,023	237,652	0
N-Nitrosodiphenylamine	0	340,000	10	340,010	0
p-Nitrosodiphenylamine	0	65	544	24,209	0
N-Nitrosomorpholine	0	0	0	0	0
5-Nitro-o-toluidine	0	0	35	35	0
(M) Norflurazon	0	1,000	54,010	55,010	0
(M) Oryzalin	0	0	0	0	0
(M) Oxydemeton methyl	0	0	0	0	0
(M) Oxydiazon	2,400	100	611	6,123	0
(M) Oxyfluorfen	130	15,093	90	15,313	0
(M) Ozone	2,314,564	0	529,986	2,844,550	0
Paraldehyde	250,000	0	33	297,504	0
(M) Paraquat dichloride	0	170	206	444	0
Parathion	0	0	0	0	0
(M) Pebulate	600	4,600	270	5,470	0
(M) Pendimethalin	190,000	6,774	1,498	198,572	56
Pentachloroethane	5,972,374	75,431	1,552	6,269,357	0
Pentachlorophenol	6,780	87,462	24,914	232,195	6
Peracetic acid	12,884	12,396	42,816	81,929	0
(M) Perchloromethyl mercaptan	540	0	541	1,081	0
(M) Permethrin	651	665	543	1,864	0
(M) Phenanthrene	1,107,863	166	141,094	1,447,666	42,526
Phenol	28,882,015	6,432,595	14,174,077	125,909,841	71,950

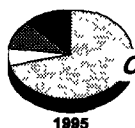


Table 4-34. Quantities of TRI Chemicals in Waste, by Chemical, 1995 (Alphabetically Ordered), Continued.

CAS Number ³⁹	Chemical	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
26002-80-2	(M) Phenothrin	0	0	0	0
95-54-5	(M) 1,2-Phenylenediamine	0	0	0	0
108-45-2	(M) 1,3-Phenylenediamine	0	0	0	493
106-50-3	p-Phenylenediamine	0	0	0	0
90-43-7	2-Phenylphenol	0	0	530	0
57-41-0	(M) Phenytoin	0	0	0	0
75-44-5	Phosgene	0	0	430,034	0
7803-51-2	(M) Phosphine	0	0	0	0
7664-38-2	Phosphoric acid	216,200,610	11,790,110	14,792	57,328
7723-14-0	Phosphorus (yellow or white)	1,091	26,089	0	0
85-44-9	Phthalic anhydride	421,574	1,317	2,420,922	4,951,573
1918-02-1	(M) Picloram	0	0	0	0
88-89-1	Picric acid	0	0	53,393	2
51-03-6	(M) Piperonyl butoxide	0	0	0	5
—	Polybrominated biphenyls	0	0	0	0
—	(M) Polychlorinated alkanes	79,803	151,324	0	142,329
1336-36-3	Polychlorinated biphenyls (PCBs)	0	0	0	0
—	(M) Polycyclic aromatic compounds	1,508,268	8,513,171	10,281,825	12,035
7758-01-2	(M) Potassium bromate	0	0	0	0
128-03-0	(M) Potassium dimethyldithio- carbamate	0	0	0	0
137-41-7	(M) Potassium N-methyldithio- carbamate	0	0	0	0
41198-08-7	(M) Profenofos	0	0	0	0
7287-19-6	(M) Prometryn	0	0	0	1
23950-58-5	Pronamide	3,700	0	0	0
1918-16-7	(M) Propachlor	0	0	0	0
1120-71-4	Propane sultone	0	0	0	0
709-98-8	(M) Propanil	0	0	0	0
2312-35-8	(M) Propargite	0	0	0	544
107-19-7	(M) Propargyl alcohol	0	0	198,867	344,704
31218-83-4	(M) Propetamphos	0	0	0	0
60207-90-1	(M) Propiconazole	0	0	0	0
123-38-6	Propionaldehyde	0	0	898,697	5,565
114-26-1	Propoxur	0	0	0	0
115-07-1	Propylene	6,713,304	0	488,140,123	3,132,285
75-55-8	Propyleneimine	0	0	0	0
75-56-9	Propylene oxide	3,091	0	17,981,778	281,155
110-86-1	Pyridine	5,974,830	14,008	1,713,719	186,855
91-22-5	Quinoline	1,750	2,243	302,003	22
106-51-4	Quinone	0	0	179,870	1,328
82-68-8	Quintozone	863	0	0	0
76578-14-8	(M) Quizalofop-ethyl	0	0	0	0
10453-86-8	(M) Resmethrin	0	0	0	0
81-07-2	Saccharin (manufacturing)	0	0	0	0
94-59-7	Safrole	0	0	0	0
7782-49-2	Selenium	1,604	4,604	0	0
—	Selenium compounds	590,805	158,278	0	10
7440-22-4	Silver	563,576	1,251,487	0	1
—	Silver compounds	327,846	923,206	0	0
122-34-9	(M) Simazine	0	0	0	0
26628-22-8	(M) Sodium azide	188,810	516,000	0	0
1982-69-0	(M) Sodium dicamba	0	0	0	0
128-04-1	(M) Sodium dimethyldithio- carbamate	250	157,435	0	0



1995

Table 4-34, Cont.

Chemical	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production- related Waste Pounds	Non-Production related Waste Pounds
(N) Phenothrin	0	0	0	0	0
(N) 1,2-Phenylenediamine	499,896	7,316	44,037	551,249	320
(N) 1,3-Phenylenediamine	561,713	134,176	111,161	807,543	0
p-Phenylenediamine	364,868	20,082	5,757	390,707	0
2-Phenylphenol	1,027,544	2,065	32,590	1,062,729	0
(N) Phenytoin	0	0	0	0	0
Phosgene	15,061,816	2,414	9,067	15,503,331	7
(N) Phosphine	0	0	2,491	2,491	10
Phosphoric acid	351,391,040	5,353,129	55,523,253	640,330,262	3,978,666
Phosphorus (yellow or white)	5,052	147,342	61,278	240,852	1,077
Phthalic anhydride	18,689,501	444,206	669,959	27,599,052	26,158
(N) Picloram	208	0	221	429	0
Picric acid	1,261,618	0	49,477	1,364,490	0
(N) Piperonyl butoxide	0	16,290	1,099	17,394	0
Polybrominated biphenyls	0	0	0	0	0
(N) Polychlorinated alkanes	96,520	448,787	302,873	1,221,636	0
Polychlorinated biphenyls (PCBs)	0	64,494	8,242	72,736	0
(N) Polycyclic aromatic compounds	1,426,106	4,261	1,959,018	23,704,684	22,295
(N) Potassium bromate	0	0	0	0	0
(N) Potassium dimethyldithio- carbamate	11,000	161,362	211	172,573	0
(N) Potassium N-methyldithio- carbamate	0	0	35	35	0
(N) Profenofos	109	0	0	109	0
(N) Prometryn	1,314	7,603	4,028	12,946	0
Pronamide	0	1,200	260	5,160	0
(N) Propachlor	0	7,270	1,237	8,507	14,000
Propane sultone	16	0	0	16	0
(N) Propanil	0	402	4,468	4,870	0
(N) Propargite	0	3,723	10	4,277	0
(N) Propargyl alcohol	56,027	78,003	301,056	978,657	0
(N) Propetamphos	0	0	1,067	1,067	0
(N) Propiconazole	0	1,026	0	1,026	0
Propionaldehyde	2,347,999	87,520	339,023	3,678,804	23
Propoxur	0	1,081	4	1,085	0
Propylene	251,910,399	80,239	20,857,453	770,833,803	1,008,814
Propyleneimine	1,433	0	600	2,033	0
Propylene oxide	14,336,911	191,603	1,136,664	33,931,202	20,197
Pyridine	438,352	483,295	540,602	9,351,661	1,057
Quinoline	222,705	16,120	27,124	571,967	252
Quinone	130,500	30,173	8,601	350,472	0
Quintozene	0	759,587	2,251	762,701	110
(N) Quizalofop-ethyl	0	0	5	5	0
(N) Resmethrin	0	0	0	0	0
Saccharin (manufacturing)	9,700	10	1,600	11,310	74
Safrole	1	5	0	6	0
Selenium	23	2,271	1,524	10,026	0
Selenium compounds	2	48,520	209,786	1,007,401	49,259
Silver	87,462	530	17,603	1,920,659	614
Silver compounds	3,966,504	23,219	52,145	5,292,920	269
(N) Simazine	150,000	24,000	4,970	178,970	0
(N) Sodium azide	84,064	3,900,934	165,880	4,855,688	90
(N) Sodium dicamba	0	800	15,200	16,000	0
(N) Sodium dimethyldithio- carbamate	380,228	497,003	27,409	1,062,325	5,000



1995

Table 4-34. Quantities of TRI Chemicals in Waste, by Chemical, 1995 (Alphabetically Ordered), Continued.

CAS Number ³⁹	Chemical	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
7632-00-0	Ⓜ Sodium nitrite	309,908	23,857	0	109
100-42-5	Styrene	9,295,298	633,255	20,674,599	9,167,759
96-09-3	Styrene oxide	0	0	35,337	0
7664-93-9	Sulfuric acid	689,399,526	5,436,470	66,777	24,524
2699-79-8	Ⓜ Sulfuryl fluoride	0	0	0	0
35400-43-2	Ⓜ Sulprofos	0	0	0	0
34014-18-1	Ⓜ Tebuthiuron	1	0	0	0
3383-96-8	Ⓜ Temephos	0	0	0	0
5902-51-2	Ⓜ Terbacil	0	0	0	0
630-20-6	1,1,1,2-Tetrachloroethane	2,600,000	0	0	0
79-34-5	1,1,2,2-Tetrachloroethane	6,200,000	2,233,342	846,600	880
127-18-4	Tetrachloroethylene	46,321,663	6,760,079	8,622,647	1,093,383
354-14-3	Ⓜ 1,1,2,2-Tetrachloro-1-fluoroethane	0	0	0	0
961-11-5	Tetrachlorvinphos	330	0	0	47,000
64-75-5	Ⓜ Tetracycline hydrochloride	0	0	0	0
7696-12-0	Ⓜ Tetramethrin	0	0	0	0
7440-28-0	Thallium	688,093	3,852	0	0
148-79-8	Ⓜ Thiabendazole	1	0	0	2,160
28249-77-6	Ⓜ Thiobencarb	0	0	0	0
59669-26-0	Ⓜ Thiodicarb	1,500	0	0	0
23564-05-8	Ⓜ Thiophanate-methyl	320	0	0	0
79-19-6	Ⓜ Thiosemicarbazide	0	0	0	0
62-56-6	Thiourea	7,082	0	0	0
137-26-8	Thiram	18,412	31,151	0	5
1314-20-1	Thorium dioxide	26,000	0	0	0
7550-45-0	Titanium tetrachloride	710,000,000	129,787	0	0
108-88-3	Toluene	1,006,142,890	24,998,832	214,713,627	77,679,933
584-84-9	Toluene-2,4-diisocyanate	427	0	37,664	16,408
91-08-7	Toluene-2,6-diisocyanate	107	0	9,416	3,705
26471-62-5	Toluenediisocyanate (mixed isomers)	15,224	2,784	5,800,065	60,045
95-53-4	o-Toluidine	49	0	78,623	90,297
43121-43-3	Ⓜ Triadimefon	0	0	0	0
2303-17-5	Ⓜ Triallate	19,838	0	0	0
101200-48-0	Ⓜ Tribenuron methyl	0	0	0	0
1983-10-4	Ⓜ Tributyltin fluoride	0	0	0	0
2155-70-6	Ⓜ Tributyltin methacrylate	0	0	0	25
78-48-8	Ⓜ S,S,S-Tributyltrithiophosphat	0	0	0	0
52-68-6	Trichlorfon	0	0	0	0
76-02-8	Ⓜ Trichloroacetyl chloride	0	0	0	0
120-82-1	1,2,4-Trichlorobenzene	40,745	10,541	2,400	108,129
71-55-6	1,1,1-Trichloroethane	60,006,194	3,749,541	3,487,698	1,031,261
79-00-5	1,1,2-Trichloroethane	18,699,000	11,817,647	12,061,000	256,687
79-01-6	Trichloroethylene	154,114,179	8,395,770	2,514,155	1,087,014
75-69-4	Trichlorofluoromethane (CFC-11)	138,712	227,287	618,422	170,699
88-06-2	2,4,6-Trichlorophenol	0	0	0	0
96-18-4	Ⓜ 1,2,3-Trichloropropane	88,000	9	460,000	0
57213-69-1	Ⓜ Triclopyr triethylammonium salt	0	0	0	0
121-44-8	Ⓜ Triethylamine	488,423	428,122	34,114	530,349
1582-09-8	Trifluralin	2,107	0	0	3
26644-46-2	Ⓜ Triforine	0	0	0	0
95-63-6	1,2,4-Trimethylbenzene	12,145,170	1,057,041	4,669,946	2,930,031
639-58-7	Ⓜ Triphenyltin chloride	0	0	0	0
76-87-9	Ⓜ Triphenyltin hydroxide	0	0	0	1



Table 4-34, Cont.

Chemical	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production- related Waste Pounds	Non-Production related Waste Pounds
(N) Sodium nitrite	6,823,861	2,554,040	3,216,513	12,928,288	270
Styrene	16,435,231	4,358,652	45,017,434	105,582,228	173,274
Styrene oxide	0	0	13	35,350	0
Sulfuric acid	648,325,161	13,133,147	27,871,906	1,384,257,511	85,997
(N) Sulfuryl fluoride	0	0	355,007	355,007	0
(N) Sulprofos	1,137	0	249	1,386	0
(N) Tebuthiuron	1,000	1,100	1	2,102	0
(N) Temephos	0	0	0	0	0
(N) Terbacil	5,070	7,558	4,608	17,236	0
1,1,1,2-Tetrachloroethane	3,986,000	379,203	7,356	6,972,559	40
1,1,2,2-Tetrachloroethane	13,754,898	150,324	10,503	23,196,547	40
Tetrachloroethylene	26,279,022	1,988,175	9,229,793	100,294,762	14,443
(N) 1,1,2,2-Tetrachloro-1-fluoroethane	0	0	0	0	0
Tetrachlorvinphos	1,020	4,244	4,394	56,988	0
(N) Tetracycline hydrochloride	0	1,736	677	2,413	0
(N) Tetramethrin	0	437	0	437	0
Thallium	0	190	31	692,166	0
(N) Thiabendazole	1,200	1,931	3,740	9,032	0
(N) Thiobencarb	0	620	3,162	3,782	0
(N) Thiodicarb	41,139	160	180	42,979	0
(N) Thiophanate-methyl	0	2,677	507	3,504	0
(N) Thiosemicarbazide	0	0	0	0	0
Thiourea	18,535	11,867	10,652	48,136	0
Thiram	407	10,224	100,429	160,628	0
Thorium dioxide	0	2,600	1	28,601	0
Titanium tetrachloride	23,836,598	2,928	52,646	734,021,959	11
Toluene	214,220,366	19,796,400	143,045,725	1,700,597,773	362,200
Toluene-2,4-diisocyanate	3,311	20,298	6,130	84,238	10
Toluene-2,6-diisocyanate	652	1,566	7,487	22,933	2
Toluenediisocyanate (mixed isomers)	2,876,258	181,283	59,841	8,995,500	11,604
o-Toluidine	55,846	65,937	33,625	324,377	0
(N) Triadimefon	0	0	0	0	0
(N) Triallate	93,000	52,830	24,149	189,817	0
(N) Tribenuron methyl	0	5,144	1	5,145	0
(N) Tributyltin fluoride	250	0	25	275	0
(N) Tributyltin methacrylate	9,096	4,320	50	13,491	0
(N) S,S,S-Tributyltrithiophosphat	2,541	316	1,717	4,574	0
Trichlorfon	0	0	0	0	0
(N) Trichloroacetyl chloride	0	0	1	1	0
1,2,4-Trichlorobenzene	1,137,925	393,319	183,352	1,876,411	6,386
1,1,1-Trichloroethane	1,108,250	1,340,140	22,412,050	93,135,134	14,146
1,1,2-Trichloroethane	24,559,416	3,265,020	275,057	70,933,827	481
Trichloroethylene	5,218,927	2,284,181	25,236,967	198,851,193	221,305
Trichlorofluoromethane (CFC-11)	4,200	291,955	961,314	2,412,589	1,036
2,4,6-Trichlorophenol	1,294,115	0	371	1,294,486	0
(N) 1,2,3-Trichloropropane	1,330,000	10,000,000	12,691	11,890,700	0
(N) Triclopyr triethylammonium salt	4	110	3	117	0
(N) Triethylamine	1,552,253	1,034,980	2,496,753	6,564,994	7
Trifluralin	99,980	76,583	54,675	233,348	9,312
(N) Triforine	0	300	890	1,190	0
1,2,4-Trimethylbenzene	26,124,033	443,603	8,069,392	55,439,216	11,068
(N) Triphenyltin chloride	2,555	0	1	2,556	0
(N) Triphenyltin hydroxide	109,816	390	401	110,608	0



Chapter 4 — 1995 TRI Releases and Transfers

Table 4-34. Quantities of TRI Chemicals in Waste, by Chemical, 1995 (Alphabetically Ordered), Continued.

CAS Number ⁶⁹	Chemical	Recycled On-site Pounds	Recycled Off-site Pounds	Energy Recovery On-site Pounds	Energy Recovery Off-site Pounds
51-79-6	Urethane	0	0	0	0
7440-62-2	Vanadium (fume or dust)	164,454	47,531	217	0
50471-44-8 (M)	Vinclozolin	0	0	0	0
108-05-4	Vinyl acetate	311,385	533,356	15,379,353	6,544,593
593-60-2	Vinyl bromide	0	0	0	0
75-01-4	Vinyl chloride	118,321,038	90,685	23,368,507	20,853
75-35-4	Vinylidene chloride	1,438,000	55	190,253	102,442
108-38-3	m-Xylene	1,917,498	27,006	4,141,480	245,136
95-47-6	o-Xylene	333,958	59,486	15,563,897	1,847,249
106-42-3	p-Xylene	468,683	8,192	2,168,729	3,563
1330-20-7	Xylene (mixed isomers)	134,851,248	42,630,930	141,832,236	70,258,502
87-62-7	2,6-Xylidine	0	0	8,000	0
7440-66-6	Zinc (fume or dust)	24,615,547	78,189,787	0	63,901
—	Zinc compounds	125,376,642	227,779,027	445,200	392,497
12122-67-7	Zineb	0	0	0	0
—	Mixtures and other trade names	23,359	2,000	96,280,793	390,328
—	Trade secrets	0	0	0	0
Total for All TRI Chemicals		19,048,561,729	2,284,063,998	2,902,970,808	500,682,639



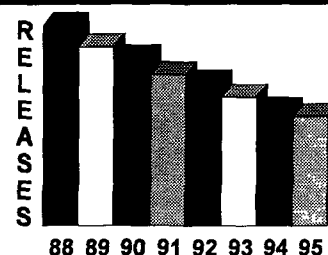
Table 4-34, Cont.

Chemical	Treated On-site Pounds	Treated Off-site Pounds	Quantity Released/ Disposed of Pounds	Total Production- related Waste Pounds	Non-Production related Waste Pounds
Urethane	0	1,165	4,742	5,907	2,500
Vanadium (fume or dust)	0	820	53,983	267,005	0
Ⓜ Vinclozolin	0	1,030	0	1,030	0
Vinyl acetate	19,204,403	8,096,363	4,913,177	54,982,630	14,788
Vinyl bromide	36	0	54,910	54,946	0
Vinyl chloride	36,417,904	76,372	1,048,680	179,344,039	31,505
Vinylidene chloride	6,614,873	85,282	161,353	8,592,258	16,577
m-Xylene	3,100,684	131,806	725,433	10,289,043	1,431
o-Xylene	2,213,011	859,260	1,394,158	22,271,019	11,491
p-Xylene	645,547	8,722	2,945,595	6,249,031	17,280
Xylene (mixed isomers)	81,743,670	10,131,330	97,978,596	579,426,512	232,798
2,6-Xylidine	303	258	225	8,786	0
Zinc (fume or dust)	1,699,473	6,474,074	10,665,596	121,708,378	35,448
Zinc compounds	4,100,111	25,481,977	167,856,698	551,432,152	11,110,938
Zineb	0	0	0	0	0
Mixtures and other trade names	72,738,249	294,943	501,858	170,231,530	0
Trade secrets	0	0	40	40	0
Total for All TRI Chemicals	7,290,373,550	557,077,046	2,443,328,448	35,027,058,218	32,768,232

Ⓜ Compound categories do have CAS numbers (—).

Ⓜ Newly reportable in 1995.

Chapter 5



Year-to-Year Comparison of TRI Data

This chapter compares TRI release and transfer data for recent years (1993 to 1995) and the “baseline” reporting year (1988). This chapter also reviews TRI data for chemicals targeted by the 33/50 Program, EPA's initiative for voluntary reductions of releases and transfers, from its baseline year (1988) to its final “target” year (1995). The final section looks at waste management data collected under the Pollution Prevention Act of 1990, from 1991 to 1995. The discussion of the “core” chemical list, in the Introduction below, is important for accurate interpretation of these year-to-year comparisons, particularly because the chemical list was almost doubled for the 1995 reporting year. The newly added chemicals are not included in this chapter because there are no reports for them before 1995.

INTRODUCTION

Because TRI data are collected annually, they can be used to measure the nation's progress in

reducing toxic chemical releases and off-site transfers from manufacturing facilities. This chapter attempts to measure such progress on a national, state, industry, and chemical-specific basis.

Tables in this chapter compare 1995 data to 1993 and 1994 data to indicate recent trends, and to the 1988 data to measure progress from the beginning of the TRI program. Although 1987 was the first year for TRI reporting, 1988 has been chosen as the baseline year for comparisons because of concerns about the data quality of industry's submissions in the first year. Most tables include data for 1988 and 1993-1995 only.

Certain TRI reporting requirements have changed since the inception of the program. It is important to understand these changes and consider their implications when comparing TRI data across years.



“Core” Chemicals for Year-to-Year Comparisons

EPA has the authority to add chemicals to the reporting list if they meet the statutory toxicity criteria and to delete chemicals from the list if EPA determines that they do not meet the toxicity criteria. Since 1987, EPA has deleted a number of chemicals from the list, added others, and modified the reporting requirements for others. The largest expansion has been the chemicals added for the 1995 reporting year, which are not included in this chapter but are highlighted in Chapter 4.

Year-to-year comparisons must be based on a consistent set of chemicals to assure that any changes in total releases or total transfers do not simply reflect the addition, deletion, or change in definition of reportable chemicals from one year to another. Data in this chapter represent facility reporting only for the “core” chemicals for the years being compared. The set of “core” chemicals differs depending on which years are represented in the tables. Tables comparing data for 1994 and 1995 include only those chemicals that were reportable in both those years. Any chemical added for the 1994 reporting year, for example, would be included because it was reportable in both 1994 and 1995. A chemical that was added for 1995 would not appear, because it was reportable only in one of the two years.

Similarly, tables for 1988 to 1995 include only chemicals that were reportable in all years from 1988 through 1995. These tables would not include, for example, chemicals added in 1990, 1991, 1994, or 1995. Also, for 1989, non-fibrous forms of aluminum oxide were removed from the list. Because of this modification, aluminum oxide is not included in any year-to-year comparison that includes the year 1988.

Thus, the chemicals added for the 1995 reporting year do not appear in any of the tables in this chapter, because they are not common to all years being compared. Also, none of the tables include any chemical deleted from the TRI list, regardless of the year it was deleted. As explained below, the reporting definitions for ammonia, hydrochloric acid, and sulfuric acid have changed, and they therefore are also not included in tables in this chapter. Because of this normalization process, done for comparative purposes, release and transfer totals presented for 1995 in this chapter differ from the 1995 totals in Chapter 4.

Reporting of Ammonia, Hydrochloric Acid, and Sulfuric Acid

As described in Box 5-1, reporting requirements for ammonia have changed. Also, ammonium sulfate and ammonium nitrate are no longer individually listed on TRI. The ammonia portion of these chemicals, however, remains on the TRI list, and the nitrates portion of ammonium nitrate is reportable under the newly added nitrate compounds category.

In addition, non-aerosol forms of hydrochloric acid and sulfuric acid have been removed from the list, hydrochloric acid with the 1995 reporting year and sulfuric acid in 1994 (see Box 5-2). This means that only airborne forms of these chemicals count towards the reporting threshold and release calculations, and releases of their non-aerosol forms are no longer reportable. Because of this modification to the reporting requirements, these chemicals are not included in any year-to-year comparisons in this chapter.



An Explanation of the Modification to the Reporting Requirements for Aqueous Ammonia and the Delisting of Ammonium Sulfate (Solution) and Ammonium Nitrate (Solution)

On June 30, 1995, EPA finalized four actions in response to a petition to delete ammonium sulfate (solution) from the list of toxic chemicals subject to reporting under EPCRA Section 313: (1) deleted the sulfate portion of ammonium sulfate (solution) from the list of toxic chemicals and made the ammonia portion reportable under the ammonia listing, (2) required that threshold and release determinations for aqueous ammonia be based on 10% of the total aqueous ammonia present in aqueous solutions of ammonia, (3) modified the ammonia listing by adding this qualifier: "ammonia (includes anhydrous ammonia and aqueous ammonia from water dissociable ammonium salts and other sources; 10% of total aqueous ammonia is reportable under this listing)," and (4) removed the specific listing for ammonium nitrate (solution), although the ammonia portion is still reportable under the ammonia listing and, as discussed below, ammonium nitrate is also reportable under the nitrate compounds category. All actions were effective for the 1994 reporting year (reports due July 1, 1995), except for deletion of the specific listing for ammonium nitrate (solution), which became effective with the 1995 reporting year (reports due July 1, 1996).

In previous years, there was a great deal of confusion as to what should be reported under the ammonia listing, specifically over the sources of aqueous ammonia that must be included and how aqueous ammonia should be reported. Modifying the ammonia listing by adding the above qualifier should result in more consistent and accurate reporting under this listing since it clarifies what is reportable. The requirement to report only 10% of total aqueous ammonia under the ammonia listing takes into account the fact that one form of ammonia is relatively more toxic to aquatic organisms and that under many environmental conditions this form makes up no more than 10% of total aqueous ammonia. The 10% reporting limit for aqueous ammonia means that some facilities will no longer meet reporting thresholds and that the pounds of aqueous ammonia reported as released and transferred from the facilities that do report may be lower. It is important to remember that the 10% reporting limit only applies to aqueous ammonia; anhydrous ammonia is still 100% reportable.

Although ammonium sulfate (solution) has been deleted from the list, the aqueous ammonia from this chemical is still reportable under the ammonia listing. To determine the amount of aqueous ammonia from ammonium sulfate (solution) that should be added to the aqueous ammonia totals, the amount of ammonium sulfate (solution) is multiplied by 0.026. This represents 10% of the total aqueous ammonia present in ammonium sulfate (solution) since ammonia (as NH_3) makes up 26% of ammonium sulfate.

The removal of the ammonium nitrate (solution) listing is reflected in this public data release. Like ammonium sulfate (solution), the aqueous ammonia from ammonium nitrate (solution) is reportable under the ammonia listing. To determine the amount of aqueous ammonia from ammonium nitrate (solution) that should be added to the aqueous ammonia totals, the amount of ammonium nitrate (solution) is multiplied by 0.021. This represents 10% of the total aqueous ammonia present in ammonium nitrate (solution) since ammonia (as NH_3) makes up 21% of ammonium nitrate. In addition, ammonium nitrate is also reportable under the nitrate compounds category, which was added for the 1995 reporting year. Although this chemical is reportable under two listings, no double reporting of releases or transfers occurs since under the nitrate compounds category only the weight of the nitrate ion is included in calculations of releases and transfers.

To determine the quantity of total aqueous ammonia released to surface water, land, or underground injection, data users must multiply the reported quantity by 10. For example, to make use of the quantities reported for aqueous ammonia in any analysis of releases to surface waters, the reported amounts must be converted to total aqueous ammonia values. This is necessary in order to take into account site specific conditions of pH and temperature which determine the amount of total ammonia that will be present in the more aquatically toxic form. To convert the reported aqueous ammonia values to total ammonia, simply multiply amounts by 10.

Box 5-1. An Explanation of the Modification to the Reporting Requirements for Aqueous Ammonia and the Delisting of Ammonium Sulfate (Solution) and Ammonium Nitrate (Solution).



An Explanation of the Modification to the Reporting Requirements for Hydrochloric and Sulfuric Acid

On June 30, 1995, EPA finalized a modification to the listing for sulfuric acid and on July 25, 1996, EPA finalized the same modification to the listing for hydrochloric acid. These two chemical listings were modified by the addition of the following qualifier: “(acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size).” The modification to sulfuric acid was effective for the 1994 reporting year and the modification to hydrochloric acid was effective for the 1995 reporting year. EPA made these modifications in response to petitions to delist the non-aerosol forms of these chemicals. EPA determined that the non-aerosol forms did not meet the listing criteria of EPCRA Section 313(d) and therefore granted the petitions. These modifications mean that facilities are no longer required to report releases and transfers of non-aerosol forms of sulfuric and hydrochloric acid under EPCRA Section 313.

These changes in the reporting requirements for sulfuric and hydrochloric acid are reflected in the large reductions in reported releases and transfers of these chemicals. Most of these reductions result from the fact that solutions of these chemicals that do not become airborne are exempt from reporting. Thus there are large reductions in the amounts released, particularly quantities discharged to surface waters and injected underground and in amounts reported for most types of transfers. Since airborne forms are still covered by these listings, reported fugitive or nonpoint air emissions have not changed as much as other types of releases, and there has been little change in the stack or point air emission totals. In addition to lower reported releases and transfers, some facilities may no longer exceed reporting thresholds for the aerosol forms only and thus may not have to file a report.

Box 5-2. An Explanation of the Modification to the Reporting Requirements for Hydrochloric and Sulfuric Acid.

Threshold Changes

Facilities are required to report for a particular chemical only if they meet the manufacture, process, or otherwise use thresholds for that chemical. The “otherwise use” threshold has remained 10,000 pounds since the inception of the program. However, the manufacture and process thresholds began at 75,000 pounds for 1987, dropped to 50,000 pounds for 1988, and dropped again to 25,000 pounds for 1989 and thereafter. Due in part to these declining thresholds, the number of facilities reporting to TRI and the number of forms filed increased from 1987 to 1988 and again from 1988 to 1989. These threshold changes may have impacted the TRI data between 1988 and 1989, but would not affect data after 1989.

Effective in 1995, facilities whose “total annual reportable amount” for a reportable chemical

does not exceed 500 pounds can submit “certification” forms (Form As) instead of Form Rs (if they do not manufacture, process, or use more than 1 million pounds of the chemical). Form As identify the facility and chemical, but do not supply any amounts of release, transfer, or waste management. In prior years, such facilities were required to report such amounts, and totals for 1988-1994 include their submissions. Of the forms submitted in 1995, more than 5,000 are Form As, which do not provide release, transfer, or waste management amounts. Thus, some portion of any decrease in reported amounts from 1994 or earlier years would be attributable to the 1995 submission of these “certification” forms.

New Transfer Types

Beginning with the 1991 reporting year, facilities were required to report transfers off-site for

**Table 5-1. Comparison of TRI Releases and Transfers, 1994-1995.^①**

	1994 Number	1995 Number	1994-1995 Change	
			Number	Percent
Total Facilities	20,976	20,244	-732	-3.5
Form Rs	64,491	57,218		
Form As		5,288		
Total Forms	64,491	62,506	-1,985	-3.1
	Pounds	Pounds	Pounds	Percent
Total Air Emissions	1,300,741,903	1,211,967,750	-88,774,153	-6.8
Fugitive Air	366,537,611	318,693,435	-47,844,176	-13.1
Point Source Air	934,204,292	893,274,315	-40,929,977	-4.4
Surface Water	40,040,531	35,945,515	-4,095,016	-10.2
Underground Injection	125,777,282	150,243,903	24,466,621	19.5
Releases to Land	282,950,878	265,956,693	-16,994,185	-6.0
Total Releases	1,749,510,594	1,664,113,861	-85,396,733	-4.9
Transfers to Recycling	2,170,295,400	2,142,948,293	-27,347,107	-1.3
Transfers to Energy Recovery	456,830,378	487,069,564	30,239,186	6.6
Transfers to Treatment	220,963,750	239,684,106	18,720,356	8.5
Transfers to POTWs	160,082,277	156,683,871	-3,398,406	-2.1
Transfers to Disposal	266,074,072	260,661,888	-5,412,184	-2.0
Other Off-site Transfers ^②	3,421,533	2,222,813	-1,198,720	-35.0
Total Transfers	3,277,667,410	3,289,270,535	11,603,125	0.4
Total Releases and Transfers	5,027,178,004	4,953,384,396	-73,793,608	-1.5

the purposes of recycling and energy recovery to TRI. Prior to 1991, facilities were required to report only transfers to POTWs and other off-site locations for the purposes of treatment and disposal.

Because of this change in the reporting requirements, total transfers for 1988 are not comparable to total transfers for 1991 and beyond. Comparisons between 1988 and 1995 transfers in this chapter include only those transfer types that were reportable in 1988. Comparisons between 1994 and 1995 transfers include all transfer types reportable for 1991 and beyond.

TRI Releases and Transfers, 1994-1995 and 1988-1995

NATIONAL OVERVIEW

Total Releases

Reported releases of toxic chemicals to the environment decreased by 85.4 million pounds from 1994 to 1995, from 1.75 billion pounds to 1.66 billion pounds (see Table 5-1). This represents a decline of 4.9%. The greatest reduction occurred in reported air emissions (88.8 million pounds, or a 6.8% decrease). Discharges to surface water decreased 4.1 million pounds (a

^① Does not include delisted chemicals, chemicals added in 1995, and ammonia, hydrochloric acid, and sulfuric acid.

^② Transfers reported with no waste management codes or invalid codes.

Table 5-2. Comparison of TRI Releases and Transfers, 1988, 1993-1995.^③

	1988	1993	1994	1995	1988-1995 Change	
	Number	Number	Number	Number	Number	Percent
Total Facilities	20,412	21,260	20,697	19,968	-444	-2.2
Form Rs	62,638	64,477	62,923	55,751	—	—
Form As	—	—	—	5,179	—	—
Total Forms	62,638	64,477	62,923	60,930	-1,708	-2.7
	Pounds	Pounds	Pounds	Pounds	Pounds	Percent
Total Air Emissions	2,176,711,749	1,317,366,483	1,263,917,460	1,172,650,647	-1,004,061,102	-46.1
Fugitive Air	679,933,826	375,914,140	349,634,925	302,209,786	-377,724,040	-55.6
Point Source Air	1,496,777,923	941,452,343	914,282,535	870,440,861	-626,337,062	-41.9
Surface Water	164,466,515	194,863,841	39,974,880	35,794,255	-128,672,260	-78.2
Underground Injection	161,939,132	113,289,640	114,170,231	136,751,624	-25,187,508	-15.6
Releases to Land	459,231,827	268,040,133	282,797,978	265,251,632	-193,980,195	-42.2
Total Releases	2,962,349,223	1,893,560,097	1,700,860,549	1,610,448,158	-1,351,901,065	-45.6
Transfers to Recycling ^④	NA	1,937,016,457	2,168,766,870	2,141,325,371	NA	NA
Transfers to Energy Recovery ^④	NA	444,763,451	455,461,086	485,656,459	NA	NA
Transfers to Treatment	369,160,080	208,231,555	217,216,579	235,231,411	-133,928,669	-36.3
Transfers to POTWs	254,722,925	163,233,454	158,464,603	154,661,990	-100,060,935	-39.3
Transfers to Disposal	386,183,255	250,671,071	259,376,987	254,785,189	-131,398,066	-34.0
Other Off-site Transfers ^⑤	42,859,210	2,359,906	3,421,283	2,221,798	-40,637,412	—
Total Transfers	1,052,925,470	3,006,275,894	3,262,707,408	3,273,882,218	—	—
Total Releases and Transfers	4,015,274,693	4,899,835,991	4,963,567,957	4,884,330,376	—	—

10.2% decline) and releases to land decreased 17.0 million pounds (6.0%). Among reported releases, only underground injection increased, by 24.5 million pounds or 19.5%. Table 5-1 compares the 1995 TRI data to the 1994 data.

From 1988 to 1995, total releases decreased by 1.35 billion pounds, a 45.6% decline. Table 5-2 compares the 1995 TRI data to the 1988 data, and Figure 5-1 shows the distribution by media of TRI releases for the period.

Total Transfers

Reported transfers of TRI chemicals to off-site locations increased by 11.6 million pounds from 1994 to 1995, from 3.28 billion pounds to

3.29 billion pounds (see Table 5-1). This represents an increase of just 0.4%. Transfers to energy recovery increased 30.2 million pounds (6.6% increase) and transfers to treatment increased 18.7 million pounds (8.5%). All other transfer categories decreased, with the largest reduction occurring in transfers to recycling (27.3 million pounds, a 1.3% decrease).

Because transfers to recycling and energy recovery were not reportable in 1988, total transfers for 1995 cannot be compared to total transfers for 1988. However, transfers to POTWs and other off-site locations for the purposes of treatment and disposal have declined 36.2% since 1988 (see Table 5-2).

③ Does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid.

④ NA: Transfers for recycling or energy recovery were not required to be reported for 1988.

⑤ For 1993, 1994, and 1995, transfers reported with no waste management codes or invalid codes. For 1988, transfers reported with no waste management codes, invalid codes, or codes not required to be reported in 1988.

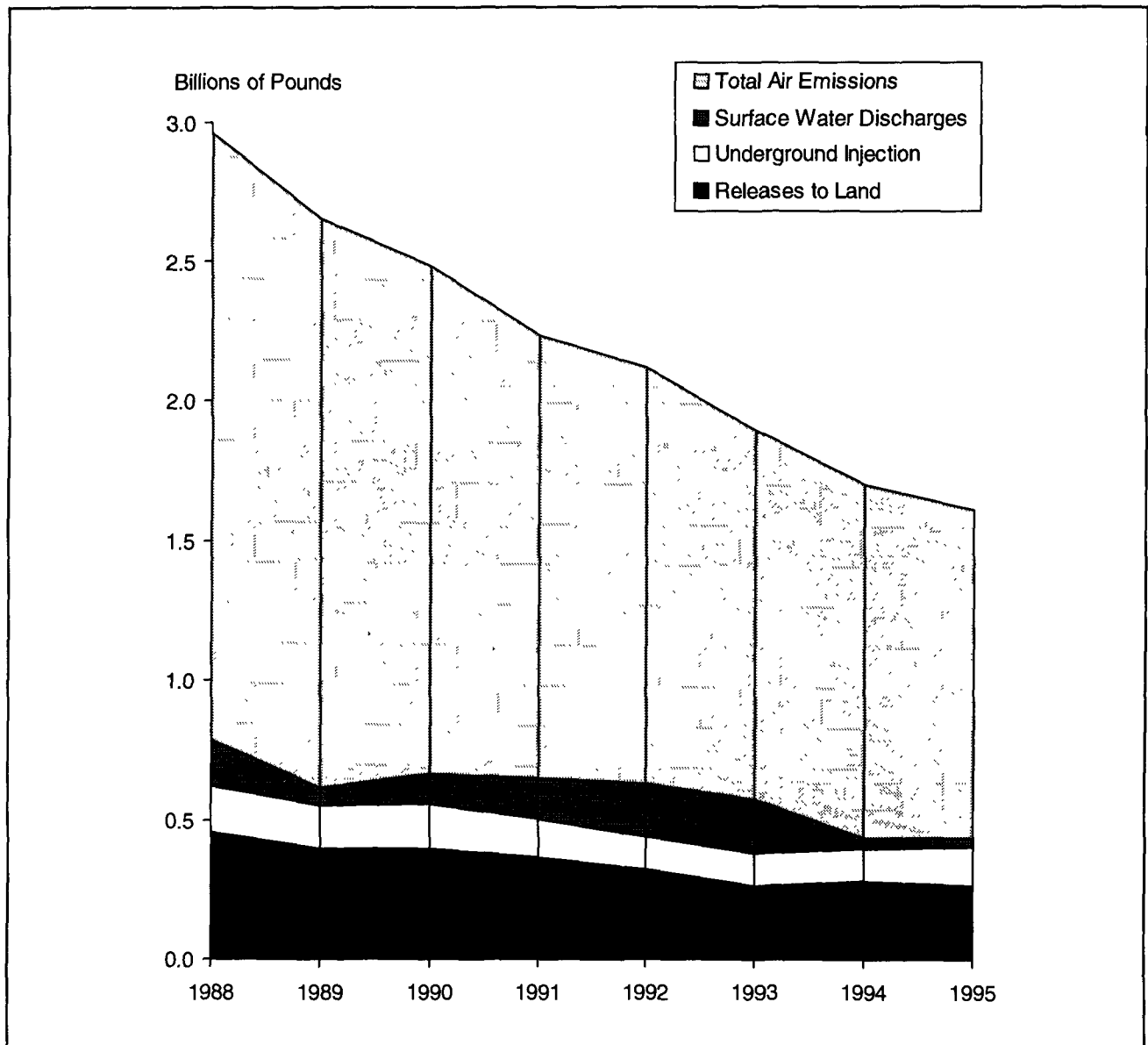


Figure 5-1. Distribution of TRI Releases, 1988-1995.⑥

⑥ Does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid.



Facilities and Forms

The number of facilities reporting to TRI dropped 3.5% from 1994 to 1995, from 20,976 to 20,244. The number of individual chemical reports dropped 3.1%, from 64,491 in 1994 to 62,506 in 1995. However, the number of facilities and forms for 1995 will probably rise somewhat over time due to late reporting and to resolution of outstanding data quality problems that may have prevented data entry of some submissions prior to the preparation of this report. Form As, described above, accounted for 8.5% of total forms in 1995, the first year in which facilities could submit these “certification” forms.

The total number of facilities and forms increased from 1988 to 1989, probably as a result of the changes in reporting thresholds described earlier in this chapter, but has steadily decreased since 1989.

STATES, INDUSTRIES, AND CHEMICAL-SPECIFIC DATA, 1988-1995

Change in Releases and Transfers by State

Table 5-3 compares the total TRI releases reported by each state for 1988 through 1995.

The five states with the largest reported decrease in total TRI releases were Louisiana (122.2 million-pound reduction), Texas (114.5 million pounds), Indiana (98.1 million pounds), Virginia (70.5 million pounds), and California (64.0 million pounds).

In Louisiana, facilities reported total releases in 1995 (for the 1988-1995 “core” chemicals) at half the 1988 level (a 50.5% decrease). The

greatest reduction, in amount and percentage, occurred in surface water discharges, a decrease of 105.6 million pounds or 83.3%. At the same time, Louisiana air emissions decreased 9.5 million pounds (15.0%) and underground injection 10.0 million pounds (20.0%). Reported land releases increased 2.9 million pounds; although these constitute a smaller portion of Louisiana releases than those to the other environmental media, the increase represents a 179.9% rise in this release category.

Air emissions reported by facilities in Texas decreased by 83.7 million pounds from 1988 to 1995, a 44.7% reduction. A 1.0 million-pound reduction in reported discharges to water amounts to a 60.3% reduction over that period. Underground injection reported by Texas facilities decreased 8.8 million pounds (10.9%), and the greatest proportional reduction reported occurred in releases to land, 63.5% (21.0 million pounds). Overall, the reduction in total releases reported by Texas facilities was 37.8%.

Twenty-three states and territories reported decreases in total releases of more than 50% between 1988 and 1995, led by Wyoming and New Hampshire, with reductions in percentage terms of 93.4% and 85.0% respectively. Only five have reported net increases in total TRI releases since 1988.

Table 5-4 presents the complete release and transfer information for each state for 1988 and 1993-1995. No reports were received from the Northern Mariana Islands for any year 1988-1995. None were received from the District of Columbia for any year 1990-1993. One facility from Guam has reported for 1995, the first TRI report received from that territory.

**Table 5-3. Change in Total TRI Releases by State, 1988-1995 (Alphabetically Ordered).⁷**

State	Total Releases				1988-1995 Change	
	1988 Pounds	1993 Pounds	1994 Pounds	1995 Pounds	Pounds	Percent
Alabama	103,599,893	90,151,172	84,092,824	88,802,962	-14,796,931	-14.3
Alaska	3,712,819	2,104,493	1,095,396	2,158,114	-1,554,705	-41.9
American Samoa	0	23	0	0	0	—
Arizona	65,699,311	11,812,922	30,504,005	33,525,416	-32,173,895	-49.0
Arkansas	35,987,952	23,852,659	27,567,713	22,862,823	-13,125,129	-36.5
California	90,478,535	41,417,295	33,852,471	26,460,474	-64,018,061	-70.8
Colorado	13,221,685	3,957,533	3,726,264	3,190,475	-10,031,210	-75.9
Connecticut	32,536,246	12,393,486	10,062,413	7,200,777	-25,335,469	-77.9
Delaware	6,924,983	3,913,563	3,642,211	2,822,092	-4,102,891	-59.2
District of Columbia	500	0	28,560	29,715	29,215	5,843.0
Florida	59,369,659	45,793,613	70,222,531	50,666,292	-8,703,367	-14.7
Georgia	67,891,794	36,393,920	41,139,626	36,502,845	-31,388,949	-46.2
Guam	0	0	0	3,100	3,100	—
Hawaii	834,123	499,239	514,100	398,260	-435,863	-52.3
Idaho	7,283,355	1,870,323	2,393,056	2,625,053	-4,658,302	-64.0
Illinois	107,659,215	69,935,058	71,706,953	67,396,357	-40,262,858	-37.4
Indiana	160,767,042	78,980,446	65,018,808	62,656,884	-98,110,158	-61.0
Iowa	38,598,050	22,571,799	21,081,118	19,184,243	-19,413,807	-50.3
Kansas	28,563,881	16,636,005	15,842,883	14,581,654	-13,982,227	-49.0
Kentucky	49,698,427	30,869,606	29,578,103	28,012,507	-21,685,920	-43.6
Louisiana	241,889,333	263,610,591	113,098,235	119,732,974	-122,156,359	-50.5
Maine	14,672,506	8,075,897	6,054,578	5,821,027	-8,851,479	-60.3
Maryland	17,996,265	10,333,346	10,611,407	10,106,093	-7,890,172	-43.8
Massachusetts	26,064,998	10,044,953	8,581,150	6,937,443	-19,127,555	-73.4
Michigan	94,915,332	71,909,712	75,923,919	54,148,328	-40,767,004	-43.0
Minnesota	54,342,570	22,077,776	19,588,770	16,770,614	-37,571,956	-69.1
Mississippi	54,595,247	42,545,684	41,332,445	38,177,624	-16,417,623	-30.1
Missouri	85,228,646	47,556,978	44,175,837	39,813,067	-45,415,579	-53.3
Montana	35,586,989	44,484,931	46,348,366	42,614,633	7,027,644	19.7
Nebraska	13,509,608	9,497,593	7,989,214	7,303,056	-6,206,552	-45.9
Nevada	2,288,491	2,945,830	3,001,993	3,175,316	886,825	38.8
New Hampshire	12,278,806	3,185,449	2,234,516	1,839,896	-10,438,910	-85.0
New Jersey	36,330,577	14,069,708	12,541,482	10,882,363	-25,448,214	-70.0
New Mexico	30,245,502	22,937,543	17,131,923	17,869,074	-12,376,428	-40.9
New York	87,704,342	33,468,014	29,393,607	25,618,013	-62,086,329	-70.8
North Carolina	121,477,166	76,500,916	77,887,739	69,164,473	-52,312,693	-43.1
North Dakota	1,129,649	918,489	976,657	1,182,826	53,177	4.7
Ohio	157,019,795	95,508,200	90,805,502	94,077,919	-62,941,876	-40.1
Oklahoma	28,263,478	14,963,888	12,719,248	12,861,539	-15,401,939	-54.5
Oregon	17,835,785	13,984,679	15,833,372	17,746,258	-89,527	-0.5
Pennsylvania	97,146,898	43,981,709	44,628,335	40,236,506	-56,910,392	-58.6
Puerto Rico	12,669,091	10,453,269	9,072,804	8,369,812	-4,299,279	-33.9
Rhode Island	6,321,238	3,381,757	3,025,809	2,555,888	-3,765,350	-59.6
South Carolina	60,583,799	44,669,577	42,442,439	44,180,079	-16,403,720	-27.1
South Dakota	2,312,072	1,891,118	1,998,430	1,757,384	-554,688	-24.0
Tennessee	115,217,602	95,015,198	87,015,769	88,367,796	-26,849,806	-23.3
Texas	302,813,440	197,100,523	187,318,681	188,295,905	-114,517,535	-37.8
Utah	123,311,329	84,202,339	65,671,221	68,621,600	-54,689,729	-44.4
Vermont	1,594,192	616,425	607,470	510,623	-1,083,569	-68.0
Virgin Islands	1,847,998	1,579,195	960,560	1,185,940	-662,058	-35.8
Virginia	109,749,707	43,668,940	42,088,497	39,247,564	-70,502,143	-64.2
Washington	25,876,891	16,707,296	19,863,073	20,958,755	-4,918,136	-19.0
West Virginia	31,330,757	18,492,909	17,898,330	15,861,485	-15,469,272	-49.4
Wisconsin	48,632,514	29,233,006	29,095,397	24,266,128	-24,366,386	-50.1
Wyoming	16,739,140	793,504	874,739	1,110,114	-15,629,026	-93.4
Total	2,962,349,223	1,893,560,097	1,700,860,549	1,610,448,158	-1,351,901,065	-45.6

⁷ Does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid.



Table 5-4. TRI Releases and Transfers by State, 1988, 1993-1995 (Alphabetically Ordered).⁽³⁾

State	Year	Facilities Number	Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
Alabama	95	467	79,861,644	1,737,869	16	7,203,433	88,802,962
	94	477	78,915,188	1,425,786	251	3,751,599	84,092,824
	93	466	83,121,454	2,974,402	145,613	3,909,703	90,151,172
	88	370	97,235,270	872,926	1,734,717	3,756,980	103,599,893
Alaska	95	9	745,164	929,268	38	483,644	2,158,114
	94	13	272,595	820,450	35	2,316	1,095,396
	93	8	1,239,626	863,050	42	1,775	2,104,493
	88	6	1,575,689	2,134,652	1,018	1,460	3,712,819
American Samoa	94	1	0	0	0	0	0
	93	2	18	5	0	0	23
	88	1	0	0	0	0	0
Arizona	95	167	5,009,036	4,463	14	28,511,903	33,525,416
	94	170	5,349,033	39	11	25,154,922	30,504,005
	93	171	3,992,843	47	18	7,820,014	11,812,922
	88	163	12,529,106	2,250	0	53,167,955	65,699,311
Arkansas	95	344	18,863,478	325,226	2,360,926	1,313,193	22,862,823
	94	363	20,919,043	196,332	4,549,764	1,902,574	27,567,713
	93	359	20,290,092	194,476	1,127,981	2,240,110	23,852,659
	88	309	30,269,758	272,891	3,530,506	1,914,797	35,987,952
California	95	1,283	24,262,463	1,429,758	339,770	428,483	26,460,474
	94	1,396	29,253,339	3,776,119	331,592	491,421	33,852,471
	93	1,527	34,782,397	2,505,164	3,621,884	507,850	41,417,295
	88	1,719	79,687,023	9,059,819	76,653	1,655,040	90,478,535
Colorado	95	154	3,084,406	16,449	0	89,620	3,190,475
	94	161	3,558,117	21,147	0	147,000	3,726,264
	93	158	3,727,051	27,321	500	202,661	3,957,533
	88	167	10,604,763	14,686	1,000	2,601,236	13,221,685
Connecticut	95	300	6,092,675	1,012,992	0	95,110	7,200,777
	94	323	8,082,641	1,875,191	0	104,581	10,062,413
	93	353	10,125,381	1,793,966	0	474,139	12,393,486
	88	424	25,336,026	5,598,378	250	1,601,592	32,536,246
Delaware	95	62	2,773,890	34,098	0	14,104	2,822,092
	94	61	3,435,805	37,277	0	169,129	3,642,211
	93	65	3,669,326	69,990	0	174,247	3,913,563
	88	57	6,391,842	293,377	0	239,764	6,924,983
District of Columbia	95	3	10,460	255	0	19,000	29,715
	94	5	9,660	1,600	0	17,300	28,560
	88	1	250	250	0	0	500
Florida	95	477	23,290,254	197,513	2,379,394	24,799,131	50,666,292
	94	474	23,148,132	197,964	2,098,058	44,778,377	70,222,531
	93	461	19,651,472	56,502	1,221,816	24,863,823	45,793,613
	88	458	27,793,876	809,409	540,466	30,225,908	59,369,659
Georgia	95	648	34,388,061	620,332	0	1,494,452	36,502,845
	94	649	38,887,327	794,509	0	1,457,790	41,139,626
	93	668	34,165,317	960,345	0	1,268,258	36,393,920
	88	589	66,556,291	599,796	59,467	676,240	67,891,794



Table 5-4.

State	Year	Transfers to Recycling ⁹ Pounds	Transfers to Energy Recovery ⁹ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ¹⁰ Pounds	Total Transfers ¹¹ Pounds
Alabama	95	33,113,096	13,985,336	5,633,611	237,702	12,208,279	2,320	65,180,344
	94	32,785,657	13,753,869	3,123,093	188,316	12,554,288	12,054	62,417,277
	93	28,176,947	11,552,312	6,971,782	204,596	13,429,666	0	60,335,303
	88	NA	NA	8,166,981	828,434	6,089,721	152,341	NA
Alaska	95	1,320	10	30	0	6,030	0	7,390
	94	353,880	0	112,075	1,265	0	1,450	468,670
	93	450,043	0	2,364	20	20	0	452,447
	88	NA	NA	0	1,000	1,750	0	NA
American Samoa	94	0	0	0	0	0	0	0
	93	0	0	7	0	0	0	7
	88	NA	NA	0	0	0	0	NA
Arizona	95	50,230,912	735,051	4,793,045	748,822	428,773	0	56,936,603
	94	36,793,607	663,103	1,714,915	261,485	278,717	0	39,711,827
	93	46,124,532	557,905	1,608,781	253,055	198,267	0	48,742,540
	88	NA	NA	982,495	319,046	537,011	4,300	NA
Arkansas	95	54,967,460	6,617,500	1,658,305	39,580	1,546,061	3,428	64,832,334
	94	73,717,601	5,607,087	1,278,825	65,243	1,740,126	150	82,409,032
	93	43,869,766	5,503,557	1,168,429	47,952	1,026,204	5	51,615,913
	88	NA	NA	2,247,808	654,666	5,081,158	286,634	NA
California	95	74,667,184	8,828,682	10,328,967	8,870,941	8,850,521	10,763	111,557,058
	94	62,651,665	7,590,077	5,172,497	8,210,526	8,362,918	13,045	92,000,728
	93	64,979,118	8,269,240	3,689,202	10,817,063	9,084,157	1,320	96,840,100
	88	NA	NA	13,245,908	7,335,336	18,824,146	4,011,443	NA
Colorado	95	11,285,610	3,370,752	1,036,894	180,138	270,725	250	16,144,369
	94	10,874,631	3,542,445	1,653,222	197,078	312,109	17,882	16,597,367
	93	9,517,638	2,265,882	3,425,217	252,125	393,060	4,050	15,857,972
	88	NA	NA	2,258,631	343,192	2,514,194	76,836	NA
Connecticut	95	24,901,814	2,363,710	6,343,521	659,352	976,985	2,140	35,247,522
	94	24,242,682	2,038,982	5,611,646	553,045	868,096	710	33,315,161
	93	23,746,535	3,906,431	5,728,862	532,167	871,264	926	34,786,185
	88	NA	NA	9,470,292	1,898,977	5,263,312	327,917	NA
Delaware	95	16,974,700	2,394,162	724,148	2,472,929	94,065	0	22,660,004
	94	13,264,644	2,287,856	723,859	2,779,774	465,469	0	19,521,602
	93	15,054,760	422,921	898,958	2,907,097	124,632	0	19,408,368
	88	NA	NA	943,512	2,732,712	1,710,169	19,894	NA
District of Columbia	95	13,250	0	0	580	27,000	0	40,830
	94	33,155	0	0	113,832	27,000	0	173,987
	88	NA	NA	250	250	0	0	NA
Florida	95	12,508,671	1,630,638	2,623,664	5,944,827	1,172,860	14,055	23,894,715
	94	17,095,753	2,098,490	2,140,110	3,479,964	966,415	202,007	25,982,739
	93	17,386,601	3,039,480	2,197,199	8,806,240	1,319,282	173,320	32,922,122
	88	NA	NA	5,765,350	15,421,725	1,639,540	1,550,157	NA
Georgia	95	31,289,551	7,624,996	3,174,459	1,428,141	2,802,507	1,755	46,321,409
	94	45,354,985	7,835,427	2,549,727	1,156,875	2,509,185	323	59,406,522
	93	48,551,887	6,627,237	2,092,043	2,258,695	2,606,480	504	62,136,846
	88	NA	NA	8,212,597	6,314,692	19,036,045	1,131,143	NA



Chapter 5 — Year-to-Year Comparison of TRI Data

Table 5-4. TRI Releases and Transfers by State, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾ Continued.

State	Year	Facilities Number	Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
Guam	95	1	0	3,100	0	0	3,100
Hawaii	95	12	396,696	1,260	9	295	398,260
	94	14	509,572	1,250	773	2,505	514,100
	93	15	496,199	1,000	280	1,760	499,239
	88	23	716,773	2,500	12,300	102,550	834,123
Idaho	95	51	1,838,198	291,590	0	495,265	2,625,053
	94	52	1,550,290	19,704	0	823,062	2,393,056
	93	51	1,330,114	11,993	0	528,216	1,870,323
	88	46	3,060,774	31,450	0	4,191,131	7,283,355
Illinois	95	1,217	44,749,168	168,204	260	22,478,725	67,396,357
	94	1,254	50,964,319	121,146	4,399	20,617,089	71,706,953
	93	1,279	50,030,615	162,111	2,053	19,740,279	69,935,058
	88	1,243	95,716,841	503,835	72,044	11,366,495	107,659,215
Indiana	95	940	55,677,073	196,542	3,398	6,779,871	62,656,884
	94	971	62,407,182	219,826	129,906	2,261,894	65,018,808
	93	973	65,758,597	452,951	76,116	12,692,782	78,980,446
	88	801	98,712,993	1,874,738	261,899	59,917,412	160,767,042
Iowa	95	364	17,801,070	11,414	0	1,371,759	19,184,243
	94	374	19,615,985	18,542	0	1,446,591	21,081,118
	93	380	20,381,764	21,869	0	2,168,166	22,571,799
	88	351	37,801,113	164,451	5	632,481	38,598,050
Kansas	95	255	12,615,156	15,096	1,150,779	800,623	14,581,654
	94	259	14,799,078	12,005	733,374	298,426	15,842,883
	93	263	15,418,702	36,872	973,662	206,769	16,636,005
	88	209	26,236,226	31,871	2,206,210	89,574	28,563,881
Kentucky	95	382	26,905,509	318,624	0	788,374	28,012,507
	94	387	28,518,730	249,463	0	809,910	29,578,103
	93	398	29,689,572	167,533	0	1,012,501	30,869,606
	88	327	43,982,175	271,197	250	5,444,805	49,698,427
Louisiana	95	275	54,097,351	21,096,571	39,964,674	4,574,378	119,732,974
	94	275	56,638,077	20,452,257	32,046,965	3,960,936	113,098,235
	93	267	50,255,157	176,937,323	32,690,828	3,727,283	263,610,591
	88	263	63,628,088	126,661,808	49,965,239	1,634,198	241,889,333
Maine	95	80	5,259,582	246,591	0	314,854	5,821,027
	94	90	5,019,220	396,718	0	638,640	6,054,578
	93	92	6,173,776	543,656	0	1,358,465	8,075,897
	88	95	13,351,437	379,127	3,000	938,942	14,672,506
Maryland	95	170	7,218,716	404,931	0	2,482,446	10,106,093
	94	172	7,931,537	391,751	500	2,287,619	10,611,407
	93	168	7,856,158	271,362	0	2,205,826	10,333,346
	88	178	15,814,891	347,596	2	1,833,776	17,996,265
Massachusetts	95	462	6,900,624	8,188	0	28,631	6,937,443
	94	490	8,553,464	7,020	0	20,666	8,581,150
	93	524	9,967,496	25,538	0	51,919	10,044,953
	88	617	25,906,069	44,548	0	114,381	26,064,998



Table 5-4, Cont.

State	Year	Transfers to Recycling ⁹ Pounds	Transfers to Energy Recovery ⁹ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ¹⁰ Pounds	Total Transfers ¹¹ Pounds
Guam	95	0	0	0	15,000	0	0	15,000
Hawaii	95	113,272	5	7,599	0	163,269	0	284,145
	94	45,146	6,220	4,820	5,000	17,371	5,000	83,557
	93	39,148	0	790	5,000	14,982	0	59,920
	88	NA	NA	0	3,250	13,682	0	NA
Idaho	95	354,954	52,471	70,385	214,185	17,066	0	709,061
	94	423,532	56,534	103,511	214,572	12,730	0	810,879
	93	318,850	151,454	45,275	249,221	4,217	0	769,017
	88	NA	NA	16,069	352,627	65,184	750	NA
Illinois	95	96,328,512	30,441,222	8,862,884	5,785,126	15,323,135	1,516	156,742,395
	94	91,510,849	29,993,856	13,293,304	7,570,153	16,113,096	3,930	158,485,188
	93	79,516,587	33,302,967	14,150,126	8,303,852	15,918,435	22,844	151,214,811
	88	NA	NA	23,146,126	10,626,399	26,028,188	3,585,157	NA
Indiana	95	197,009,438	11,259,189	9,391,074	924,902	24,388,934	2,605	242,976,142
	94	189,104,444	13,171,231	9,021,449	1,824,369	16,343,013	504	229,465,010
	93	160,155,354	15,309,092	9,797,343	877,604	13,910,912	750	200,051,055
	88	NA	NA	18,789,342	4,897,670	23,522,567	884,000	NA
Iowa	95	36,910,546	4,368,441	1,760,900	7,180,538	1,820,938	0	52,041,363
	94	31,379,618	5,112,603	1,332,538	6,958,341	1,627,112	7,817	46,418,029
	93	20,539,402	4,430,847	1,741,712	6,370,830	878,150	778,250	34,739,191
	88	NA	NA	1,046,465	5,660,214	4,429,821	201,088	NA
Kansas	95	40,431,627	2,417,625	848,327	173,808	3,149,670	250	47,021,307
	94	44,919,177	2,454,669	1,296,479	566,987	1,480,267	0	50,717,579
	93	38,493,365	1,983,402	1,326,146	668,667	2,208,844	200	44,680,624
	88	NA	NA	1,849,215	951,814	1,698,713	171,596	NA
Kentucky	95	49,618,957	7,539,913	8,630,141	1,018,569	2,454,950	86,004	69,348,534
	94	53,984,981	6,862,113	5,109,726	1,012,215	2,930,329	500	69,899,864
	93	48,451,758	7,607,306	5,613,910	1,200,117	2,604,565	510	65,478,166
	88	NA	NA	13,654,218	1,763,720	16,745,323	1,479,156	NA
Louisiana	95	52,439,798	11,172,003	6,155,765	29,653	1,855,160	0	71,652,379
	94	50,755,045	7,064,795	4,720,024	336,109	1,721,957	0	64,597,930
	93	43,746,605	9,788,035	5,105,078	136,749	1,458,649	0	60,235,116
	88	NA	NA	3,247,073	3,511,253	8,954,347	184,152	NA
Maine	95	2,685,904	461,856	296,274	163,553	1,325,276	0	4,932,863
	94	2,802,353	476,418	229,550	221,365	805,518	0	4,535,204
	93	3,030,202	576,075	229,619	169,651	177,715	0	4,183,262
	88	NA	NA	292,808	326,942	725,978	30,883	NA
Maryland	95	9,001,118	1,549,667	1,780,458	2,947,392	1,824,756	0	17,103,391
	94	7,443,139	1,072,056	1,512,093	2,707,695	906,467	206,000	13,847,450
	93	23,040,970	2,214,534	1,328,706	3,428,375	316,615	0	30,329,200
	88	NA	NA	2,695,253	3,256,115	2,003,710	95,866	NA
Massachusetts	95	26,119,394	5,856,944	5,246,375	3,576,205	1,222,708	1,005	42,022,631
	94	26,383,693	6,216,677	5,120,946	3,606,999	1,340,778	10	42,669,103
	93	19,858,681	6,240,413	3,844,857	4,120,045	1,177,198	22,629	35,263,823
	88	NA	NA	11,657,247	7,068,410	5,812,015	941,002	NA



Chapter 5 — Year-to-Year Comparison of TRI Data

Table 5-4. TRI Releases and Transfers by State, 1988, 1993-1995 (Alphabetically Ordered),³ Continued.

State	Year	Facilities Number	Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
Michigan	95	816	43,814,836	522,095	6,425,841	3,385,556	54,148,328
	94	862	59,025,222	790,973	6,800,848	9,306,876	75,923,919
	93	887	58,617,762	470,889	4,236,189	8,584,872	71,909,712
	88	853	84,691,787	960,445	3,857,040	5,406,060	94,915,332
Minnesota	95	460	16,109,654	170,772	0	490,188	16,770,614
	94	463	18,483,591	154,732	0	950,447	19,588,770
	93	478	20,053,635	46,693	48	1,977,400	22,077,776
	88	399	51,259,515	360,607	0	2,722,448	54,342,570
Mississippi	95	279	33,641,623	290,119	82,001	4,163,881	38,177,624
	94	290	36,246,794	278,111	32,511	4,775,029	41,332,445
	93	282	37,400,645	541,034	52,146	4,551,859	42,545,684
	88	244	44,612,029	693,142	2,506,563	6,783,513	54,595,247
Missouri	95	517	25,371,075	92,782	0	14,349,210	39,813,067
	94	535	27,796,137	28,816	0	16,350,884	44,175,837
	93	553	29,589,606	56,700	0	17,910,672	47,556,978
	88	505	45,749,497	97,688	500	39,380,961	85,228,646
Montana	95	22	3,119,934	84,518	0	39,410,181	42,614,633
	94	19	2,786,780	77,797	0	43,483,789	46,348,366
	93	19	1,865,788	12,747	0	42,606,396	44,484,931
	88	22	2,777,629	33,014	0	32,776,346	35,586,989
Nebraska	95	143	7,038,325	15,347	0	249,384	7,303,056
	94	142	7,655,277	17,876	0	316,061	7,989,214
	93	150	9,213,832	21,964	0	261,797	9,497,593
	88	133	13,401,751	91,450	0	16,407	13,509,608
Nevada	95	32	967,435	0	0	2,207,881	3,175,316
	94	36	700,965	0	0	2,301,028	3,001,993
	93	35	527,549	0	0	2,418,281	2,945,830
	88	30	584,289	250	0	1,703,952	2,288,491
New Hampshire	95	93	1,812,061	16,880	0	10,955	1,839,896
	94	97	2,188,536	34,482	5	11,493	2,234,516
	93	107	3,121,274	55,639	0	8,536	3,185,449
	88	146	11,861,069	36,122	0	381,615	12,278,806
New Jersey	95	554	10,596,524	67,827	5	218,007	10,882,363
	94	609	12,265,981	97,114	5	178,382	12,541,482
	93	638	13,323,964	102,669	0	643,075	14,069,708
	88	805	32,517,408	954,495	2,950	2,855,724	36,330,577
New Mexico	95	36	1,088,764	1,095	0	16,779,215	17,869,074
	94	42	1,191,300	1,923	0	15,938,700	17,131,923
	93	39	958,418	4,374	0	21,974,751	22,937,543
	88	30	1,415,615	255	0	28,829,632	30,245,502
New York	95	661	23,975,236	449,833	5	1,192,939	25,618,013
	94	702	27,059,594	691,318	71,760	1,570,935	29,393,607
	93	778	31,350,111	993,547	5	1,124,351	33,468,014
	88	882	83,331,163	1,377,790	250	2,995,139	87,704,342
North Carolina	95	788	51,189,371	310,320	0	17,664,782	69,164,473
	94	827	57,806,913	601,370	0	19,479,456	77,887,739
	93	866	58,802,152	340,465	0	17,358,299	76,500,916
	88	823	105,577,996	383,664	0	15,515,506	121,477,166



Table 5-4, Cont.

State	Year	Transfers to Recycling ^② Pounds	Transfers to Energy Recovery ^③ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ^⑩ Pounds	Total Transfers ^⑪ Pounds
Michigan	95	107,914,382	63,885,660	16,182,818	8,884,836	29,150,664	750	226,019,110
	94	119,173,680	69,713,534	15,216,097	9,172,268	26,857,306	423,534	240,556,419
	93	94,992,405	60,869,612	11,255,579	7,311,045	26,907,996	3,500	201,340,137
	88	NA	NA	23,335,297	6,946,824	37,741,143	6,288,627	NA
Minnesota	95	20,611,575	2,532,777	825,696	5,093,222	1,397,153	0	30,460,423
	94	18,177,158	2,624,935	1,109,585	5,782,898	1,127,650	0	28,822,226
	93	14,989,443	4,779,212	1,168,747	3,761,140	595,585	0	25,294,127
	88	NA	NA	3,666,506	3,875,892	1,603,383	11,611	NA
Mississippi	95	30,392,474	3,268,317	1,957,529	493,239	1,008,294	1,852,705	38,972,558
	94	28,756,735	3,528,216	1,970,776	675,238	1,347,776	5,772	36,284,513
	93	25,623,300	3,750,464	770,780	588,913	1,085,639	4,200	31,823,296
	88	NA	NA	3,537,904	1,018,461	3,460,867	447,895	NA
Missouri	95	57,133,509	25,236,776	8,641,869	1,803,526	3,186,189	6,800	96,008,669
	94	60,962,276	17,306,559	14,604,175	1,640,810	5,074,254	51,886	99,639,960
	93	45,200,662	7,973,727	17,049,560	2,486,500	3,714,412	4,905	76,429,766
	88	NA	NA	5,512,307	4,841,830	5,475,315	2,034,835	NA
Montana	95	139,551	20,407	33,327	922	29,091	0	223,298
	94	2,406,947	43,953	7,871	633	111,198	0	2,570,602
	93	1,941,469	73,105	10,595	2,522	58,019	0	2,085,710
	88	NA	NA	4,456	1,312	42,914	0	NA
Nebraska	95	31,001,468	644,035	184,149	76,090	3,614,166	0	35,519,908
	94	45,004,245	680,536	233,272	248,881	5,719,320	0	51,886,254
	93	23,409,392	756,959	169,520	225,126	3,818,943	260	28,380,200
	88	NA	NA	428,699	268,587	3,426,302	25,850	NA
Nevada	95	2,016,251	6,736	2,669	7,537	54,323	0	2,087,516
	94	378,351	5,950	7,899	9,049	67,203	0	468,452
	93	414,092	4,579	17,275	7,029	78,090	0	521,065
	88	NA	NA	387,825	2,555	63,875	0	NA
New Hampshire	95	9,737,478	352,889	349,879	60,491	78,702	0	10,579,439
	94	9,571,264	323,433	367,967	136,640	139,822	12,168	10,551,294
	93	7,585,470	279,391	397,433	129,055	454,224	120,322	8,965,895
	88	NA	NA	1,436,130	137,177	1,585,084	479,009	NA
New Jersey	95	46,502,091	30,454,969	7,089,450	20,481,481	1,163,705	6,696	105,698,392
	94	58,358,462	28,391,994	11,020,507	25,053,188	1,891,178	22,180	124,737,509
	93	55,420,037	24,832,468	8,663,489	28,156,377	2,246,500	19,028	119,337,899
	88	NA	NA	26,325,834	44,607,453	8,628,793	2,604,430	NA
New Mexico	95	147,934	208,739	60,847	190,618	76,690	0	684,828
	94	165,476	147,016	102,505	318,994	98,515	0	832,506
	93	410,078	159,210	76,833	232,631	34,369	0	913,121
	88	NA	NA	67,790	23,006	140,617	0	NA
New York	95	73,953,536	10,642,557	4,541,766	5,508,500	4,256,586	5	98,902,950
	94	80,608,721	8,228,400	6,128,522	5,257,825	8,105,380	500	108,329,348
	93	78,490,855	6,264,611	5,774,509	5,120,333	5,609,539	18,673	101,278,520
	88	NA	NA	16,717,302	11,845,305	11,951,795	566,237	NA
North Carolina	95	95,057,806	10,348,627	11,273,272	1,501,451	2,496,632	12,649	120,690,437
	94	96,936,636	7,673,167	11,651,384	1,571,897	2,677,412	5	120,510,501
	93	96,428,839	9,463,795	6,942,526	1,552,065	5,291,196	263	119,678,684
	88	NA	NA	7,665,038	3,716,056	10,397,355	426,813	NA



Chapter 5 — Year-to-Year Comparison of TRI Data

Table 5-4. TRI Releases and Transfers by State, 1988, 1993-1995 (Alphabetically Ordered), Continued.

State	Year	Facilities Number	Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
North Dakota	95	28	1,182,266	35	0	525	1,182,826
	94	32	976,119	23	0	515	976,657
	93	31	917,443	514	0	532	918,489
	88	28	1,096,294	93	0	33,262	1,129,649
Ohio	95	1,511	51,685,449	565,034	11,728,468	30,098,968	94,077,919
	94	1,577	60,441,893	602,694	8,180,911	21,580,004	90,805,502
	93	1,589	66,347,222	548,301	8,643,789	19,968,888	95,508,200
	88	1,471	113,933,259	1,135,587	11,538,548	30,412,401	157,019,795
Oklahoma	95	250	12,172,317	112,896	10,238	566,088	12,861,539
	94	260	12,290,361	14,222	11,591	403,074	12,719,248
	93	248	11,836,908	66,279	20,243	3,040,458	14,963,888
	88	204	26,802,341	122,968	129,574	1,208,595	28,263,478
Oregon	95	232	16,077,446	135,179	0	1,533,633	17,746,258
	94	235	15,159,934	217,156	0	456,282	15,833,372
	93	241	12,231,115	258,763	0	1,494,801	13,984,679
	88	206	16,960,203	122,478	1	753,103	17,835,785
Pennsylvania	95	1,122	38,463,845	312,845	0	1,459,816	40,236,506
	94	1,153	42,418,171	378,440	0	1,831,724	44,628,335
	93	1,180	42,396,506	419,873	750	1,164,580	43,981,709
	88	1,086	78,986,016	1,476,265	750	16,683,867	97,146,898
Puerto Rico	95	145	8,363,794	5,739	0	279	8,369,812
	94	144	9,065,749	7,030	4	21	9,072,804
	93	157	10,445,987	2,115	0	5,167	10,453,269
	88	166	12,506,666	60,099	0	102,326	12,669,091
Rhode Island	95	132	2,549,493	6,355	0	40	2,555,888
	94	136	3,024,931	808	0	70	3,025,809
	93	148	3,360,687	21,070	0	0	3,381,757
	88	180	6,234,656	58,245	0	28,337	6,321,238
South Carolina	95	468	42,934,512	556,611	0	688,956	44,180,079
	94	460	41,148,047	586,699	0	707,693	42,442,439
	93	453	43,546,553	553,559	0	569,465	44,669,577
	88	370	58,814,380	660,905	0	1,108,514	60,583,799
South Dakota	95	68	1,756,742	255	0	387	1,757,384
	94	64	1,815,126	3,205	0	180,099	1,998,430
	93	65	1,718,626	18	0	172,474	1,891,118
	88	49	2,311,821	0	0	251	2,312,072
Tennessee	95	600	82,150,641	493,222	464,635	5,259,298	88,367,796
	94	624	80,640,499	565,568	465,257	5,344,445	87,015,769
	93	647	87,773,099	351,358	652,761	6,237,980	95,015,198
	88	528	96,071,901	997,817	4,651,370	13,496,514	115,217,602
Texas	95	1,090	103,758,611	644,951	71,820,532	12,071,811	188,295,905
	94	1,111	113,333,669	2,096,947	58,696,885	13,191,180	187,318,681
	93	1,129	121,732,720	553,642	59,787,029	15,027,132	197,100,523
	88	1,073	187,442,801	1,623,083	80,645,941	33,101,615	302,813,440
Utah	95	133	61,743,615	14,244	0	6,863,741	68,621,600
	94	146	55,427,834	7,184	0	10,236,203	65,671,221
	93	139	72,767,408	6,804	0	11,428,127	84,202,339
	88	111	111,024,208	129,355	0	12,157,766	123,311,329



Table 5-4, Cont.

State	Year	Transfers to Recycling ^② Pounds	Transfers to Energy Recovery ^③ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ^⑩ Pounds	Total Transfers ^⑪ Pounds
North Dakota	95	1,134,677	23,517	19,541	99,265	23,796	0	1,300,796
	94	419,059	13,640	93,975	198,863	11,281	0	736,818
	93	228,707	44,377	61,618	166,136	3,753	0	504,591
	88	NA	NA	79,047	25,503	65,740	0	NA
Ohio	95	216,265,215	37,518,026	15,518,873	6,126,040	27,800,596	130,065	303,358,815
	94	212,143,842	37,142,312	14,753,581	6,404,262	25,153,934	39,282	295,637,213
	93	187,418,037	28,206,001	16,094,119	8,823,846	19,842,838	45,300	260,430,141
	88	NA	NA	31,506,305	14,350,786	45,125,180	5,514,278	NA
Oklahoma	95	20,225,560	3,016,517	750,446	131,733	3,195,079	0	27,319,335
	94	22,574,665	2,129,568	962,043	130,381	2,624,266	0	28,420,923
	93	21,218,460	2,435,335	970,299	116,511	2,788,308	1,500	27,530,413
	88	NA	NA	2,236,246	196,062	4,630,413	260,835	NA
Oregon	95	19,861,332	814,662	4,498,666	8,853,790	750,762	22,190	34,801,402
	94	21,889,919	637,338	568,515	8,897,573	804,264	0	32,797,609
	93	18,093,280	495,308	632,956	4,152,633	927,639	0	24,301,816
	88	NA	NA	1,198,323	6,659,424	3,726,630	12,879	NA
Pennsylvania	95	136,151,297	15,849,434	16,735,663	5,481,771	55,501,821	11,265	229,731,251
	94	139,794,459	18,268,873	14,545,929	6,027,911	50,593,048	2,260,855	231,491,075
	93	127,245,502	20,594,893	14,358,985	7,441,139	61,004,658	1,016,364	231,661,541
	88	NA	NA	32,962,308	9,994,734	37,705,453	617,453	NA
Puerto Rico	95	11,728,018	9,940,114	5,503,442	2,141,942	293,071	0	29,606,587
	94	10,166,282	9,576,195	5,401,514	2,713,030	309,925	0	28,166,946
	93	14,568,758	7,243,621	3,850,084	2,307,612	347,428	250	28,317,753
	88	NA	NA	4,316,025	3,010,002	159,616	26,200	NA
Rhode Island	95	14,113,477	742,596	477,683	152,473	450,151	250	15,936,630
	94	15,021,756	494,435	475,522	178,962	3,761,723	0	19,932,398
	93	11,082,281	437,143	503,444	318,078	2,634,796	5	14,975,747
	88	NA	NA	1,362,984	1,389,200	1,391,330	18,608	NA
South Carolina	95	95,232,658	10,428,742	5,403,612	2,978,922	3,392,111	0	117,436,045
	94	89,506,884	9,961,587	5,482,393	2,943,242	4,675,017	0	112,569,123
	93	105,857,669	8,976,616	6,221,572	1,986,725	2,832,956	0	125,875,538
	88	NA	NA	4,723,939	2,373,012	5,303,221	5,973,334	NA
South Dakota	95	676,169	158,306	67,930	229,792	78,644	0	1,210,841
	94	680,330	99,166	37,362	251,356	73,398	0	1,141,612
	93	408,714	213,793	46,057	123,531	46,899	0	838,994
	88	NA	NA	193,764	147,289	81,170	250	NA
Tennessee	95	57,993,160	5,748,358	4,699,598	3,642,101	8,145,454	29,216	80,257,887
	94	54,167,484	8,047,741	2,200,660	4,333,831	17,536,561	750	86,287,027
	93	41,981,686	8,023,287	2,650,614	4,869,028	8,534,093	434	66,059,142
	88	NA	NA	5,840,735	8,423,559	11,268,603	204,066	NA
Texas	95	127,494,023	91,908,515	34,597,879	23,915,532	11,821,861	23,116	289,760,926
	94	127,687,127	74,843,579	25,174,826	19,546,387	12,201,457	132,339	259,585,715
	93	112,338,466	82,107,084	19,903,763	17,714,907	12,549,272	28,208	244,641,700
	88	NA	NA	38,157,084	35,446,732	15,666,534	1,348,728	NA
Utah	95	5,686,866	97,386	524,843	228,340	493,592	0	7,031,027
	94	6,095,263	131,727	835,049	192,601	1,503,716	250	8,758,606
	93	4,704,123	191,252	650,393	275,031	6,929,119	0	12,749,918
	88	NA	NA	1,196,431	500,379	524,357	19,437	NA



Table 5-4. TRI Releases and Transfers by State, 1988, 1993-1995 (Alphabetically Ordered),⁽⁸⁾ Continued.

State	Year	Facilities Number	Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
Vermont	95	34	507,937	12	0	2,674	510,623
	94	32	606,960	250	0	260	607,470
	93	39	615,915	250	0	260	616,425
	88	52	1,481,893	87,958	0	24,341	1,594,192
Virgin Islands	95	2	1,178,528	4,951	0	2,461	1,185,940
	94	3	891,291	10,766	0	58,503	960,560
	93	3	1,549,886	4,076	0	25,233	1,579,195
	88	1	1,705,156	2,500	0	140,342	1,847,998
Virginia	95	407	37,954,387	122,943	0	1,170,234	39,247,564
	94	421	40,933,113	130,489	0	1,024,895	42,088,497
	93	430	41,215,374	197,990	0	2,255,576	43,668,940
	88	411	103,155,176	398,818	1,373	6,194,340	109,749,707
Washington	95	263	19,816,354	1,112,133	0	30,268	20,958,755
	94	276	18,764,523	1,006,732	0	91,818	19,863,073
	93	281	16,068,937	605,199	0	33,160	16,707,296
	88	305	24,838,321	816,208	0	222,362	25,876,891
West Virginia	95	129	15,238,247	350,885	250	272,103	15,861,485
	94	139	17,237,990	324,654	301	335,385	17,898,330
	93	145	17,818,346	371,130	11	303,422	18,492,909
	88	114	28,992,387	1,524,178	0	814,192	31,330,757
Wisconsin	95	809	23,476,576	263,428	5	526,119	24,266,128
	94	807	27,342,866	210,569	1	1,541,961	29,095,397
	93	833	27,391,917	178,605	0	1,662,484	29,233,006
	88	750	41,821,434	281,131	250	6,529,699	48,632,514
Wyoming	95	21	1,074,375	615	20,366	14,758	1,110,114
	94	22	852,960	836	14,524	6,419	874,739
	93	22	683,971	98	35,876	73,559	793,504
	88	18	1,845,814	8,350	138,996	14,745,980	16,739,140
Total	95	19,968	1,172,650,647	35,794,255	136,751,624	265,251,632	1,610,448,158
	94	20,697	1,263,917,460	39,974,880	114,170,231	282,797,978	1,700,860,549
	93	21,260	1,317,366,483	194,863,841	113,289,640	268,040,133	1,893,560,097
	88	20,412	2,176,711,749	164,466,515	161,939,132	459,231,827	2,962,349,223



Table 5-4, Cont.

State	Year	Transfers to Recycling ^⑧ Pounds	Transfers to Energy Recovery ^⑨ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ^⑩ Pounds	Total Transfers ^⑪ Pounds
Vermont	95	1,633,551	19,461	292,141	3,789	28,396	0	1,977,338
	94	1,240,337	120,690	231,780	4,041	24,156	0	1,621,004
	93	3,978,943	177,002	290,264	16,323	22,787	0	4,485,319
	88	NA	NA	557,825	69,411	140,261	5,227	NA
Virgin Islands	95	122,698	51,700	191,134	0	5	0	365,537
	94	42,563	47,629	414,075	0	77	0	504,344
	93	682,955	125	7,261	0	1	0	690,342
	88	NA	NA	0	0	0	0	NA
Virginia	95	33,690,851	7,627,332	1,265,532	10,555,024	1,856,592	0	54,995,331
	94	27,953,744	8,804,743	1,450,040	11,409,134	1,729,210	250	51,347,121
	93	25,795,639	6,840,955	2,259,068	10,364,582	1,688,618	0	46,948,862
	88	NA	NA	4,457,362	11,061,791	2,633,796	52,544	NA
Washington	95	13,546,169	668,870	511,748	147,573	587,573	0	15,461,933
	94	11,766,871	812,179	407,076	404,220	654,742	120	14,045,208
	93	11,261,847	604,995	757,426	337,625	843,288	0	13,805,181
	88	NA	NA	3,707,617	296,730	2,396,199	214,952	NA
West Virginia	95	35,542,453	11,011,986	3,846,287	1,758,285	3,325,376	0	55,484,387
	94	30,717,217	10,707,872	3,835,907	1,464,975	2,791,813	0	49,517,784
	93	17,067,791	15,081,097	5,733,267	1,094,929	2,437,925	250	41,415,259
	88	NA	NA	10,638,845	2,603,684	8,081,514	1,000	NA
Wisconsin	95	54,584,807	19,756,663	9,814,612	1,501,738	8,590,806	0	94,248,626
	94	60,414,512	17,047,488	12,097,273	1,459,787	10,323,139	10	101,342,209
	93	53,057,520	20,130,315	9,959,100	1,942,678	9,582,871	91,136	94,763,620
	88	NA	NA	9,125,410	6,621,475	12,067,740	569,797	NA
Wyoming	95	67,247	1,612	1,684	24	7,640	0	78,207
	94	64,368	2,123	4,090	4,518	5,285	0	80,384
	93	71,288	4,029	18,013	283	35,996	0	129,609
	88	NA	NA	127,102	250	1,481	0	NA
Total	95	2,141,325,371	485,656,459	235,231,411	154,661,990	254,785,189	2,221,798	3,273,882,218
	94	2,168,766,870	455,461,086	217,216,579	158,464,603	259,376,987	3,421,283	3,262,707,408
	93	1,937,016,457	444,763,451	208,231,555	163,233,454	250,671,071	2,359,906	3,006,275,894
	88	NA	NA	369,160,080	254,722,925	386,183,255	42,859,210	NA

⑧ Does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid.

⑨ NA: Transfers for recycling or energy recovery were not required to be reported for 1988.

⑩ For 1993, 1994, and 1995, transfers reported with no waste management codes or invalid codes. For 1988, transfers reported with no waste management codes, invalid codes, or codes not required to be reported in 1988.

⑪ Because transfers for recycling or energy recovery were not required to be reported in 1988, total transfers in 1988 are not comparable to total transfers reported for 1993, 1994, or 1995.



Change in Releases and Transfers by Industry

From 1988 to 1995, all industry groups except apparel manufacturing reported net decreases in TRI releases for the “core” set of chemicals, as shown on Table 5-5. The chemicals industry, reporting more total TRI releases in 1995 than any other industry group, has also posted the greatest reductions: a net decrease of 487.8 million pounds since 1988, or 49.8%. Ranking second for total releases, the primary metals industry similarly ranks second for reductions, with facilities reporting 180.0 million pounds less in total releases in 1995 than in 1988, a 38.2% decrease. Both industries have reported their greatest reductions in air emissions: a 308.7 million-pound reduction (52.9% decrease) for the chemical industry and a 99.6 million-pound reduction (48.4%) for primary metals.

Seven industry groups, plus facilities that report multiple SIC codes, report reductions of half or more of total releases since 1988. They are led by the electrical equipment industry (79.7%), leather goods manufacturers (77.8%), and the measurement/photographic instruments industry (74.2%).

The paper industry, the third largest industry for total TRI releases, reported total releases 12.6% lower in 1995 than in 1988. In 1988, air emissions represented 88.1% of releases reported by facilities in this industry, and their reported air emissions have decreased much less (6.6%) than their releases to other media. Overall, only the lumber industry, with a 5.0% decrease in total releases, and the apparel industry, with a 33.6% increase, have shown less improvement for 1988 to 1995.

Table 5-6 presents the complete release and transfer data by industry group for 1988 through 1995.

Change in Releases and Transfers by Federal Facilities (1994-1995)

The 1995 reporting year is the second year of required reporting by federal facilities. As a result, it now is possible to compare data between reporting years. Like the private sector in its first years of reporting, federal facilities have made significant reductions in both releases and transfers.

Federal facilities reported a 2.1 million-pound decline in releases from 1994 to 1995 (see Table 5-7). This represents a 23.6% decrease. Department of Defense (DOD) facilities reported the largest decrease in pounds, 1.8 million pounds, with Air Force facilities accounting for 1.1 million pounds of the decrease.

Off-site transfers for federal facilities witnessed an even stronger drop between 1994 and 1995 (see Table 5-8). The difference was 3.4 million pounds, or 34.7%. Again DOD facilities accounted for most of the decrease, with Army facilities reporting decreases totalling 2.7 million pounds.

One of the more noteworthy differences between the 1995 data and 1994 data for federal facilities is the number of facilities reporting and the number of submissions. A total of 193 federal facilities filed 1994 reports. For 1995, however, the number was 144. Thus, there were 49 fewer federal facilities reporting in 1995 than in 1994. Many of the federal facilities which did not file for 1995 were among the smaller reporters, in terms of releases and transfers. These 49 facilities reported a total of 771,000 pounds of releases and 833,000 pounds of transfers in 1994 (these amounts include reports for all chemicals reportable in 1994, including ammonia, hydrochloric acid, and sulfuric acid). There were four of these facilities, however, that reported in excess of 90,000 pounds of releases and transfers.

**Table 5-5. Change in Total TRI Releases by Industry, 1988-1995.¹²**

SIC Code Industry	Total Releases				1988-1995 Change	
	1988 Pounds	1993 Pounds	1994 Pounds	1995 Pounds	1988-1995 Pounds	Percent
20 Food	7,288,468	7,527,563	6,159,814	5,281,131	-2,007,337	-27.5
21 Tobacco	341,927	137,118	134,771	95,226	-246,701	-72.2
22 Textiles	34,153,528	17,449,732	15,773,427	14,990,080	-19,163,448	-56.1
23 Apparel	922,129	1,002,727	1,311,274	1,232,144	310,015	33.6
24 Lumber	31,049,580	29,264,301	32,345,013	29,497,347	-1,552,233	-5.0
25 Furniture	61,362,570	54,275,528	51,525,040	40,711,615	-20,650,955	-33.7
26 Paper	201,458,920	146,849,329	180,646,013	176,175,802	-25,283,118	-12.6
27 Printing	60,694,291	36,147,817	34,312,906	31,375,373	-29,318,918	-48.3
28 Chemicals	979,850,322	679,468,132	495,870,742	492,004,551	-487,845,771	-49.8
29 Petroleum	67,649,305	49,334,492	42,534,901	40,189,664	-27,459,641	-40.6
30 Plastics	146,534,545	119,294,605	112,865,011	100,928,021	-45,606,524	-31.1
31 Leather	11,927,916	4,472,624	3,620,354	2,649,261	-9,278,655	-77.8
32 Stone/Clay/Glass	23,923,302	12,161,094	10,835,533	12,647,514	-11,275,788	-47.1
33 Primary Metals	471,663,856	281,310,049	273,635,165	291,696,854	-179,967,002	-38.2
34 Fabricated Metals	130,536,711	88,873,008	86,551,023	78,244,699	-52,292,012	-40.1
35 Machinery	59,463,237	26,566,269	23,576,090	19,293,375	-40,169,862	-67.6
36 Electrical Equip.	115,408,046	32,723,385	28,849,706	23,444,714	-91,963,332	-79.7
37 Transportation Equip.	188,629,628	121,899,571	118,900,227	104,852,457	-83,777,171	-44.4
38 Measure./Photo.	47,209,809	20,254,908	13,540,441	12,201,793	-35,008,016	-74.2
39 Miscellaneous	28,470,812	15,278,668	13,827,675	11,187,718	-17,283,094	-60.7
Multiple codes 20-39 ¹³	283,311,125	131,240,085	137,651,115	114,131,972	-169,179,153	-59.7
No codes 20-39 ¹⁴	10,499,196	18,029,092	16,394,308	7,616,847	-2,882,349	-27.5
Total	2,962,349,223	1,893,560,097	1,700,860,549	1,610,448,158	-1,351,901,065	-45.6

One of the tasks for EPA and its fellow federal agencies is to determine the reason for this change. Some initial findings point to positive efforts on the part of federal agencies to implement pollution prevention. DOD, for instance, has changed the types of fuels stored at the bulk fuel terminals managed by the Defense Logistics Agency (DLA). The upshot is that thirteen DLA facilities which filed TRI reports for 1994 did not report for 1995. DOD also reports the closure of a few military bases which reported for 1994. At several facilities, including DOD and Department of Energy facilities, TRI chemical usage fell below the reporting threshold. These and other successful efforts to lower usage of TRI chemicals can be highlighted in the annual report to the President required under EO 12856.

Reasons for Change

Box 5-3 provides a general discussion of reasons that a facility's release and transfer estimates may change from one year to another. Both real changes and "paper" changes, described in Box 5-3, influence the summary data presented in any year-to-year comparison of TRI data.

Change in Releases and Transfers by Chemical

Table 5-9 presents TRI total release data for the 20 chemicals with the largest decreases in total releases from 1988 to 1995. Releases of 1,1,1-trichloroethane (TCA), an ozone-depleting

¹² Does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid.

¹³ Facilities/forms that reported more than one 2-digit SIC code within the range of 20-39 [e.g., paper (26) and chemicals (28)].

¹⁴ Facilities/forms that did not report an SIC code or reported SIC codes outside the 20-to-39 range.



Chapter 5 — Year-to-Year Comparison of TRI Data

Table 5-6. TRI Releases and Transfers by Industry, 1988, 1993-1995.¹⁵

SIC Code	Industry	Year	Facilities ¹⁶ Number	Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
20	Food	95	1,529	4,052,699	85,648	10	1,142,774	5,281,131
		94	1,526	4,793,575	51,174	260	1,314,805	6,159,814
		93	1,543	6,016,217	76,000	265	1,435,081	7,527,563
		88	1,185	4,745,286	1,395,632	12,800	1,134,750	7,288,468
21	Tobacco	95	6	85,526	9,700	0	0	95,226
		94	6	124,897	9,874	0	0	134,771
		93	11	121,946	15,172	0	0	137,118
		88	18	330,227	10,950	0	750	341,927
22	Textiles	95	309	14,908,977	74,205	0	6,898	14,990,080
		94	327	15,647,693	110,838	4	14,892	15,773,427
		93	349	17,239,768	164,842	0	45,122	17,449,732
		88	337	33,605,487	468,191	0	79,850	34,153,528
23	Apparel	95	24	1,231,889	5	0	250	1,232,144
		94	33	1,311,246	3	0	25	1,311,274
		93	37	1,001,118	965	0	644	1,002,727
		88	31	881,030	250	0	40,849	922,129
24	Lumber	95	619	29,480,871	9,334	0	7,142	29,497,347
		94	659	32,300,864	23,732	0	20,417	32,345,013
		93	655	29,240,362	19,725	0	4,214	29,264,301
		88	678	30,972,926	27,125	0	49,529	31,049,580
25	Furniture	95	506	40,701,140	872	0	9,603	40,711,615
		94	553	51,461,057	266	0	63,717	51,525,040
		93	565	54,030,942	616	0	243,970	54,275,528
		88	499	61,287,270	3,051	0	72,249	61,362,570
26	Paper	95	449	165,779,219	7,007,433	220	3,388,930	176,175,802
		94	480	167,157,429	8,785,152	0	4,703,432	180,646,013
		93	511	133,685,603	8,449,542	0	4,714,184	146,849,329
		88	583	177,539,505	13,438,239	3,000	10,478,176	201,458,920
27	Printing	95	261	31,356,401	14,372	0	4,600	31,375,373
		94	281	34,310,693	843	0	1,370	34,312,906
		93	314	36,138,073	587	0	9,157	36,147,817
		88	356	60,581,384	32,091	40,000	40,816	60,694,291
28	Chemicals	95	3,609	274,732,696	24,625,261	133,580,355	59,066,239	492,004,551
		94	3,679	291,931,284	26,547,565	112,421,559	64,970,334	495,870,742
		93	3,770	326,399,237	181,516,758	108,502,547	63,049,590	679,468,132
		88	3,672	583,450,608	140,266,426	159,344,099	96,789,189	979,850,322
29	Petroleum	95	378	38,551,071	600,491	862,178	175,924	40,189,664
		94	387	40,715,308	467,711	710,581	641,301	42,534,901
		93	394	47,279,471	574,196	723,959	756,866	49,334,492
		88	376	63,801,575	747,282	527,819	2,572,629	67,649,305
30	Plastics	95	1,686	100,562,755	20,325	0	344,941	100,928,021
		94	1,769	112,576,281	42,473	0	246,257	112,865,011
		93	1,773	118,884,394	26,387	0	383,824	119,294,605
		88	1,468	146,345,773	30,931	754	157,087	146,534,545
31	Leather	95	82	2,632,938	1,600	0	14,723	2,649,261
		94	97	3,602,328	1,967	0	16,059	3,620,354
		93	115	4,459,131	4,095	0	9,398	4,472,624
		88	137	11,692,677	3,302	0	231,937	11,927,916
32	Stone/Clay/Glass	95	576	11,489,964	48,156	0	1,109,394	12,647,514
		94	577	9,505,859	45,248	0	1,284,426	10,835,533
		93	596	10,421,742	87,871	0	1,651,481	12,161,094
		88	570	20,772,672	104,998	0	3,045,632	23,923,302
33	Primary Metals	95	1,762	106,082,467	1,143,976	181,224	184,289,187	291,696,854
		94	1,783	99,521,962	1,761,143	292,868	172,059,192	273,635,165
		93	1,832	114,024,533	1,235,465	222,872	165,827,179	281,310,049
		88	1,576	205,691,802	3,552,854	784,604	261,634,596	471,663,856



Table 5-6.

SIC Code	Industry	Year	Transfers to Recycling ¹⁷ Pounds	Transfers to Energy Recovery ¹⁷ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ¹⁸ Pounds	Total Transfers ¹⁹ Pounds
20	Food	95	878,895	174,671	441,457	11,306,754	260,512	250	13,062,539
		94	994,803	144,835	679,937	11,377,738	458,085	5,004	13,660,402
		93	1,225,901	91,945	573,227	11,049,749	635,342	1,755	13,577,919
		88	NA	NA	237,511	14,027,014	1,085,457	122,933	NA
21	Tobacco	95	0	1,000	521	0	0	0	1,521
		94	0	0	5	0	0	0	5
		93	139,622	3,800	1,020	18	2,149	0	146,609
		88	NA	NA	120,996	81,110	0	0	NA
22	Textiles	95	724,971	1,872,701	553,360	2,011,065	513,442	0	5,675,539
		94	719,188	1,269,996	503,222	2,091,126	553,144	0	5,136,676
		93	711,531	1,190,890	470,082	2,612,025	991,039	0	5,975,567
		88	NA	NA	1,373,980	9,763,696	1,644,849	109,478	NA
23	Apparel	95	3,021	103,627	60,050	255	27,842	0	194,795
		94	88,230	125,515	121,699	2,636	69,673	0	407,753
		93	139,113	165,753	76,039	53,139	48,017	0	482,061
		88	NA	NA	45,425	276,730	103,568	5,351	NA
24	Lumber	95	444,112	2,551,381	286,504	6,006	312,407	2,418	3,602,828
		94	627,071	2,499,547	228,431	22,448	394,629	250	3,772,376
		93	833,661	2,417,962	562,227	7,207	494,820	4,300	4,320,177
		88	NA	NA	2,438,178	79,544	1,932,227	395,167	NA
25	Furniture	95	6,525,939	6,890,176	787,567	122,428	107,145	250	14,433,505
		94	4,201,644	6,370,236	1,739,882	134,380	284,499	5,772	12,736,413
		93	6,215,841	6,487,071	1,266,075	96,573	375,111	5,458	14,446,129
		88	NA	NA	3,706,391	250,472	974,037	1,143,394	NA
26	Paper	95	4,931,767	8,340,816	8,918,206	40,999,384	2,723,991	500	65,914,664
		94	1,814,356	8,893,236	8,859,734	40,562,271	2,756,515	20	62,886,132
		93	1,952,248	7,590,098	8,287,694	36,261,058	2,574,572	0	56,665,670
		88	NA	NA	11,882,811	49,614,880	6,186,598	110,559	NA
27	Printing	95	5,558,208	3,679,294	418,712	209,444	52,645	3,866	9,922,169
		94	6,228,807	3,301,908	531,812	233,217	59,490	22,740	10,377,974
		93	5,318,723	3,993,983	364,279	347,257	179,519	387	10,204,148
		88	NA	NA	4,505,946	1,751,776	493,227	396,671	NA
28	Chemicals	95	221,450,090	382,211,563	141,770,887	74,354,458	23,843,828	128,379	843,759,205
		94	243,423,939	349,170,238	126,676,534	78,049,803	25,716,934	426,229	823,463,677
		93	238,426,312	334,927,197	123,087,736	84,603,149	25,454,226	134,728	806,633,348
		88	NA	NA	172,345,824	131,623,770	66,567,653	16,517,434	NA
29	Petroleum	95	22,792,173	542,664	944,326	4,492,286	3,111,135	1	31,882,585
		94	20,347,405	1,378,553	1,253,612	3,349,685	3,473,201	0	29,802,456
		93	20,587,506	1,129,985	762,967	4,318,705	2,686,748	0	29,485,911
		88	NA	NA	2,538,235	6,087,311	4,327,532	906,249	NA
30	Plastics	95	18,768,167	7,191,208	2,970,991	700,271	10,937,221	46,580	40,614,438
		94	20,734,792	8,121,166	3,185,059	1,012,907	12,130,019	1,628	45,185,571
		93	16,391,196	9,420,989	4,391,204	775,654	10,097,163	13,642	41,089,848
		88	NA	NA	9,187,874	1,319,433	11,770,926	393,879	NA
31	Leather	95	434,713	259,792	6,686	524,995	1,410,935	0	2,637,121
		94	499,037	270,203	22,020	629,324	1,425,439	0	2,846,023
		93	247,344	315,372	62,133	627,750	1,967,848	0	3,220,447
		88	NA	NA	1,151,152	814,909	1,095,701	4,715	NA
32	Stone/Clay/Glass	95	3,113,059	3,269,384	2,225,725	659,921	5,973,277	250	15,241,616
		94	2,909,703	4,318,065	2,267,816	460,048	5,870,013	21,935	15,847,580
		93	3,499,916	6,727,389	2,794,331	447,763	8,363,068	265	21,832,732
		88	NA	NA	2,563,554	628,314	16,286,012	34,223	NA
33	Primary Metals	95	741,054,282	3,645,954	30,998,289	3,263,563	161,439,081	1,931,499	942,332,668
		94	811,528,694	3,593,375	23,085,769	2,950,281	159,181,498	431,539	1,000,771,156
		93	735,354,619	3,448,116	18,382,978	2,953,062	141,647,885	955,902	902,742,562
		88	NA	NA	46,060,054	4,986,095	157,417,139	8,830,043	NA



Chapter 5 — Year-to-Year Comparison of TRI Data

Table 5-6. TRI Releases and Transfers by Industry, 1988, 1992-1994, Continued.¹⁵

SIC Code	Industry	Year	Facilities ¹⁶ Number	Total Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
34	Fabricated Metals	95	2,704	77,514,314	99,653	681	630,051	78,244,699
		94	2,801	85,852,914	73,094	1,885	623,130	86,551,023
		93	2,870	88,207,214	60,808	693	604,293	88,873,008
		88	2,743	125,758,308	633,429	154,199	3,990,775	130,536,711
35	Machinery	95	965	19,175,747	17,164	0	100,464	19,293,375
		94	999	23,319,412	106,126	0	150,552	23,576,090
		93	1,042	26,293,192	203,892	750	68,435	26,566,269
		88	1,010	59,099,013	147,837	0	216,387	59,463,237
36	Electrical Equip.	95	1,135	23,064,346	47,022	5	333,341	23,444,714
		94	1,197	28,640,180	54,928	0	154,598	28,849,706
		93	1,292	32,192,486	91,939	269	438,691	32,723,385
		88	1,632	114,473,357	309,962	36,999	587,728	115,408,046
37	Transportation Equip.	95	1,213	104,477,828	67,186	0	307,443	104,852,457
		94	1,237	118,659,367	65,553	5	175,302	118,900,227
		93	1,250	120,380,215	69,876	505	1,448,975	121,899,571
		88	1,146	185,947,448	272,596	76,185	2,333,399	188,629,628
38	Measure./Photo.	95	271	11,946,854	249,173	0	5,766	12,201,793
		94	292	13,213,815	319,552	0	7,074	13,540,441
		93	339	19,700,884	549,067	0	4,957	20,254,908
		88	366	46,478,774	390,382	250	340,403	47,209,809
39	Miscellaneous	95	323	11,185,303	1,146	0	1,269	11,187,718
		94	348	13,819,552	1,229	0	6,894	13,827,675
		93	365	15,264,196	1,189	0	13,283	15,278,668
		88	391	28,202,314	8,076	1	260,421	28,470,812
Multiple codes 20-39 ²⁰		95	1,360	97,394,693	1,538,040	1,801,200	13,398,039	114,131,972
		94	1,432	104,223,401	1,277,767	424,751	31,725,196	137,651,115
		93	1,492	106,766,790	1,521,816	14,728	22,936,751	131,240,085
		88	1,396	206,077,594	2,418,904	957,610	73,857,017	283,311,125
No codes 20-39 ²¹		95	201	6,242,949	133,493	325,751	914,654	7,616,847
		94	234	11,228,343	228,642	318,318	4,619,005	16,394,308
		93	145	9,618,969	193,033	3,823,052	4,394,038	18,029,092
		88	242	8,976,719	204,007	812	1,317,658	10,499,196
Total		95	19,968	1,172,650,647	35,794,255	136,751,624	265,251,632	1,610,448,158
		94	20,697	1,263,917,460	39,974,880	114,170,231	282,797,978	1,700,860,549
		93	21,260	1,317,366,483	194,863,841	113,289,640	268,040,133	1,893,560,097
		88	20,412	2,176,711,749	164,466,515	161,939,132	459,231,827	2,962,349,223



Table 5-6, Cont.

SIC Code	Industry	Year	Transfers to Recycling ¹⁷ Pounds	Transfers to Energy Recovery ¹⁷ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ¹⁸ Pounds	Total Transfers ¹⁹ Pounds
34	Fabricated Metals	95	310,645,919	14,133,876	9,334,190	1,945,458	11,210,967	23,506	347,293,916
		94	272,331,255	14,046,951	9,257,053	1,771,244	12,511,704	185,370	310,103,577
		93	249,494,105	14,973,155	9,744,472	1,584,808	11,897,818	64,441	287,758,799
		88	NA	NA	18,398,775	5,577,678	29,967,572	5,500,570	NA
35	Machinery	95	60,107,366	2,990,493	1,535,954	2,036,086	2,966,759	19,755	69,656,413
		94	59,489,526	2,996,971	1,632,838	1,701,716	3,115,144	21,252	68,957,447
		93	53,675,865	2,818,933	2,039,562	1,464,035	3,289,640	34,750	63,322,785
		88	NA	NA	8,166,716	1,451,927	10,213,069	1,538,666	NA
36	Electrical Equip.	95	367,203,906	9,853,293	5,771,210	2,700,903	7,800,677	32,683	393,362,672
		94	346,289,062	9,295,906	7,151,303	2,521,761	7,725,715	13,837	372,997,584
		93	291,771,241	9,080,867	7,625,300	2,473,592	9,059,032	125,458	320,135,490
		88	NA	NA	16,893,764	5,297,962	17,256,677	1,312,057	NA
37	Transportation Equip.	95	161,426,193	14,936,000	4,806,414	2,387,236	9,553,598	29,466	193,138,907
		94	161,328,257	16,378,854	6,047,190	3,155,819	8,941,889	2,260,013	198,112,022
		93	141,027,191	17,463,954	6,775,094	3,449,445	11,265,507	974,835	180,956,026
		88	NA	NA	24,158,554	4,016,492	19,751,705	3,632,265	NA
38	Measure./Photo	95	13,957,319	2,276,954	3,073,986	558,049	773,789	0	20,640,097
		94	13,828,048	3,083,878	4,216,534	695,744	808,871	0	22,633,075
		93	13,789,135	3,335,651	2,869,094	817,219	766,044	0	21,577,143
		88	NA	NA	6,825,419	2,267,406	10,875,015	196,621	NA
39	Miscellaneous	95	18,936,493	2,885,239	568,819	439,131	1,941,342	2,140	24,773,164
		94	18,360,745	2,746,412	832,561	473,110	1,412,648	19,107	23,844,583
		93	20,272,579	2,772,811	1,060,329	503,519	3,278,840	5	27,888,083
		88	NA	NA	5,060,326	286,025	4,110,398	369,598	NA
Multiple codes 20-39 ²⁰		95	179,340,175	16,407,214	18,304,370	5,696,374	9,278,428	255	229,026,816
		94	178,788,746	16,569,705	16,410,585	6,903,935	11,373,703	587	230,047,261
		93	131,722,884	15,764,651	16,773,361	8,370,953	15,374,175	43,681	188,049,705
		88	NA	NA	28,155,040	13,791,775	23,394,047	1,305,092	NA
No codes 20-39 ²¹		95	3,028,603	1,439,159	1,453,187	247,923	546,168	0	6,715,040
		94	4,233,562	885,536	2,512,983	365,410	1,114,174	6,000	9,117,665
		93	4,219,924	642,879	262,351	416,774	222,508	299	5,764,735
		88	NA	NA	3,343,555	728,606	729,846	34,245	NA
Total		95	2,141,325,371	485,656,459	235,231,411	154,661,990	254,785,189	2,221,798	3,273,882,218
		94	2,168,766,870	455,461,086	217,216,579	158,464,603	259,376,987	3,421,283	3,262,707,408
		93	1,937,016,457	444,763,451	208,231,555	163,233,454	250,671,071	2,359,906	3,006,275,894
		88	NA	NA	369,160,080	254,722,925	386,183,255	42,859,210	NA

¹⁵ Does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid.

¹⁶ Facilities have been assigned to the "multiple" category according to all the SIC codes they reported. Forms and amounts in pounds have been assigned to single category SIC codes if only one SIC code was reported for a particular chemical form from the facility.

¹⁷ NA: Transfers to recycling or energy recovery were not required to be reported for 1988.

¹⁸ For 1993, 1994, and 1995, transfers reported with no waste management codes or invalid codes. For 1988, transfers reported with no waste management codes, invalid codes, or codes not required to be reported in 1988.

¹⁹ Because transfers for recycling or energy recovery were not required to be reported in 1988, total transfers in 1988 are not comparable to total transfers reported for 1993, 1994, or 1995.

²⁰ Facilities/forms that reported more than one 2-digit SIC code within the range of 20 to 39 [e.g. paper (26) and chemicals (28)].

²¹ Facilities/forms that did not report an SIC code or reported only SIC codes outside the 20-to-39 range.



Table 5-7. Comparison of Total TRI Releases from Federal Facilities by Agency, 1994-1995.②

Agency	Total Releases		1994-1995 Change	
	1994 Pounds	1995 Pounds	Pounds	Percent
Dept. of Defense	6,730,407	4,933,517	-1,796,890	-26.7
Air Force	4,416,764	3,289,955	-1,126,809	-25.5
Army	898,823	637,661	-261,162	-29.1
Army Corps of Engineers	22,310	22,365	55	0.2
Defense Logistics Agency	31,707	5,351	-26,356	-83.1
Marines	455,752	335,038	-120,714	-26.5
National Security Agency	0	0	0	—
Navy	905,051	643,147	-261,904	-28.9
Dept. of Energy	555,120	512,523	-42,597	-7.7
Dept. of Health and Human Services	500	0	-500	-100.0
Dept. of Interior	1,161	4,836	3,675	316.5
Dept. of Justice	92,360	32,510	-59,850	-64.8
Dept. of Transportation	23,816	16,499	-7,317	-30.7
Dept. of Treasury	6,300	37,380	31,080	493.3
Dept. of Veterans Affairs	0	0	0	—
Environmental Protection Agency	20	11	-9	-45.0
National Aeronautics and Space Admin.	549,153	473,969	-75,184	-13.7
Tennessee Valley Authority	23,725	0	-23,725	-100.0
U.S. Enrichment Corporation	751,596	663,721	-87,875	-11.7
Total	8,734,158	6,674,966	-2,059,192	-23.6

Table 5-8. Comparison of TRI Transfers from Federal Facilities by Agency, 1994-1995.②

Agency	Total Transfers		1994-1995 Change	
	1994 Pounds	1995 Pounds	Pounds	Percent
Dept. of Defense	9,303,301	5,688,310	-3,614,991	-38.9
Air Force	1,382,312	1,059,982	-322,330	-23.3
Army	6,366,714	3,672,660	-2,694,054	-42.3
Army Corps of Engineers	0	325	325	—
Defense Logistics Agency	15,730	2,792	-12,938	-82.3
Marines	782,122	559,840	-222,282	-28.4
National Security Agency	38	0	-38	-100.0
Navy	756,385	392,711	-363,674	-48.1
Dept. of Energy	56,411	69,256	12,845	22.8
Dept. of Health and Human Services	139,898	55,112	-84,786	-60.6
Dept. of Interior	4,500	0	-4,500	-100.0
Dept. of Justice	0	0	0	—
Dept. of Transportation	6,343	6,343	0	0.0
Dept. of Treasury	201,335	441,728	240,393	119.4
Dept. of Veterans Affairs	0	91,000	91,000	—
Environmental Protection Agency	0	0	0	—
National Aeronautics and Space Admin.	97,570	73,031	-24,539	-25.2
Tennessee Valley Authority	27,066	0	-27,066	-100.0
U.S. Enrichment Corporation	0	0	0	—
Total	9,836,424	6,424,780	-3,411,644	-34.7

② Does not include delisted chemicals, chemicals added in 1995, and ammonia, hydrochloric acid, and sulfuric acid.



Reasons Facility Release and Transfer Estimates Change

Some reported increases and decreases are real—that is, they reflect changes in the amounts of TRI chemicals actually released or transferred. Other reported increases and decreases are accounting or “paper” changes that do not reflect any actual change in releases and transfers. Some examples follow.

Real Changes

Source reduction activities, such as process changes, elimination of spills and leaks, inventory control, improved maintenance, chemical substitution, and alternative methods of cleaning and degreasing can cause real reductions in TRI releases and transfers.

Installation of **pollution control equipment** may lead to real reductions in TRI releases/transfers. However, if the pollution control does not destroy the reported chemical, it may merely shift waste from one type of release or disposal to another.

Increased **recycling and reuse** of waste or sale of waste as raw materials or products will result in real decreases in TRI releases and/or transfers for treatment and disposal.

Production changes can cause real changes in the quantities of TRI chemicals released or transferred by facilities. Releases/transfers are likely to increase when production increases and decrease when production decreases, although the relationship is not necessarily linear.

One-time events unrelated to normal production processes, such as accidental releases or clean-up operations, can cause a real but anomalous increase in the reporting year in which they occur and then a decrease from that abnormally high level the following year.

"Paper" Changes

Changes in estimation or calculation techniques can cause a change in the amount reported without a corresponding change in actual releases or transfers.

Clarifications of reporting instructions or changes in the way a facility interprets those instructions may cause a change in reported amounts without an actual change in releases or transfers. For example, revised guidance concerning the *de minimis* exemption and beneficiation activities which was issued by EPA for 1991 may have resulted in lower reported releases for some facilities.

Changes in reporting definition of a particular chemical may cause a change in the reported amounts without an actual change in releases or transfers. For example, revising the definitions of sulfuric acid and hydrochloric acid to include only aerosol forms, as discussed in Chapter 4, will result in lower reports of releases, when non-aerosol forms are no longer reported.

Similarly, a facility's reported releases may go down without an actual reduction in releases if the facility begins to take advantage of a **reporting exemption**. Beginning in the 1995 reporting year, some facilities whose “total annual reportable amount” for a reportable chemical does not exceed 500 pounds will no longer report amounts released or transferred because of this exemption.

Apparent increases or decreases can occur if a facility makes a **reporting error** one year and does not submit a revision for that year, but does not repeat the error the following year.

Box 5-3. Reasons Facility Release and Transfer Estimates Change.



Table 5-9. Top 20 TRI Chemicals for Decreases in Total Releases, 1988-1995.²³

CAS Number ²⁴	Chemical	Total Releases				1988-1995 Change	
		1988 Pounds	1993 Pounds	1994 Pounds	1995 Pounds	1988-1995 Pounds	Percent
71-55-6	1,1,1-Trichloroethane	181,107,819	65,258,631	38,670,891	22,641,561	-158,466,258	-87.5
108-88-3	Toluene	301,537,609	180,182,060	170,159,145	145,887,469	-155,650,140	-51.6
7664-38-2	Phosphoric acid	177,280,587	214,274,343	80,975,082	57,558,030	-119,722,557	-67.5
7782-50-5	Chlorine	140,247,259	76,191,607	60,515,570	66,255,896	-73,991,363	-52.8
75-09-2	Dichloromethane	131,097,478	66,116,674	64,180,825	57,289,960	-73,807,518	-56.3
78-93-3	Methyl ethyl ketone	141,570,666	86,940,148	80,189,922	70,054,939	-71,515,727	-50.5
67-56-1	Methanol	313,060,173	216,983,456	244,582,545	245,012,356	-68,047,817	-21.7
76-13-1	Freon 113	70,481,330	9,871,141	5,352,197	2,602,475	-67,878,855	-96.3
1330-20-7	Xylene (mixed isomers)	159,625,249	113,923,040	110,473,556	95,739,943	-63,885,306	-40.0
—	Manganese compounds	93,522,264	50,053,717	41,454,397	44,977,221	-48,545,043	-51.9
75-15-0	Carbon disulfide	124,206,241	101,993,932	84,171,126	84,169,763	-40,036,478	-32.2
—	Zinc compounds	121,922,752	69,770,422	81,674,982	87,648,691	-34,274,061	-28.1
79-01-6	Trichloroethylene	55,963,013	30,585,109	30,395,787	25,489,839	-30,473,174	-54.5
127-18-4	Tetrachloroethylene	36,310,755	11,869,502	10,540,587	9,400,811	-26,909,944	-74.1
71-43-2	Benzene	33,331,109	11,509,393	9,936,613	9,592,003	-23,739,106	-71.2
7440-66-6	Zinc (fume or dust)	30,062,856	12,199,430	10,135,623	8,465,169	-21,597,687	-71.8
67-66-3	Chloroform	27,218,821	14,369,572	11,436,029	10,600,257	-16,618,564	-61.1
74-85-1	Ethylene	50,313,255	34,434,853	34,693,534	34,145,959	-16,167,296	-32.1
7697-37-2	Nitric acid	36,475,124	22,884,094	21,379,834	21,344,509	-15,130,615	-41.5
79-10-7	Acrylic acid	23,094,652	4,105,708	6,931,783	8,369,839	-14,724,813	-63.8

chemical, declined by 158.5 million pounds, a decrease of 87.5%. TCA production was banned effective January 1, 1996, along with many other ozone depleters. The decrease in reported releases of toluene nearly matches that of TCA: 155.7 million pounds. This represents a 51.6% decline in toluene releases. Only one other chemical shows a decrease of more than 100 million pounds in releases over the seven-year period: phosphoric acid, with a 119.7 million-pound reduction (67.5%).

Methanol, the chemical with the largest reported TRI releases, ranks seventh for decreases. Methanol releases have declined 68.0 million pounds, or 21.7%, since 1988.

The 20 TRI chemicals with the largest increases in total releases from 1988 to 1995 appear in Table 5-10. Copper compounds lead this list,

with an increase of 10.4 million pounds, or 31.4%. Acetonitrile releases increased by 9.9 million pounds, or 52.1%, and styrene by 7.5 million pounds, or 21.9%.

At the end of this chapter, Table 5-15 presents the complete release and transfer information for all TRI chemicals for which reports have been received in at least one year between 1988 and 1995.

33/50 Program Chemicals

Releases and transfers for the 17 chemicals covered under the 33/50 Program continued their downward trend in 1995. Comparing the data from this most recent year with the data from previous years offers several interesting and important statistics. Similarly, contrasting

²³ Does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid.

²⁴ Compound categories do not have CAS numbers (—).

Table 5-10. Top 20 TRI Chemicals for Increases in Total Releases, 1988-1995.²⁵

CAS Number ²⁶	Chemical	Total Releases				1988-1995 Change	
		1988 Pounds	1993 Pounds	1994 Pounds	1995 Pounds	1988-1995 Pounds	Percent
—	Copper compounds	33,191,298	47,605,964	47,320,341	43,628,455	10,437,157	31.4
75-05-8	Acetonitrile	18,977,762	17,060,881	18,216,554	28,866,549	9,888,787	52.1
100-42-5	Styrene	34,363,099	34,453,842	40,541,686	41,873,608	7,510,509	21.9
75-07-0	Acetaldehyde	9,461,548	9,262,401	13,058,034	14,410,140	4,948,592	52.3
79-06-1	Acrylamide	2,227,899	4,041,746	5,217,625	6,141,395	3,913,496	175.7
95-63-6	1,2,4-Trimethylbenzene	4,438,152	6,955,879	7,863,594	7,526,129	3,087,977	69.6
100-41-4	Ethylbenzene	8,005,706	10,856,796	12,724,422	10,657,521	2,651,815	33.1
60-35-5	Acetamide	0	1,089,016	466,028	920,008	920,008	—
1634-04-4	Methyl tert-butyl ether	2,624,516	3,813,036	3,242,678	3,482,935	858,419	32.7
108-39-4	m-Cresol	19,170	556,762	668,142	729,675	710,505	3,706.3
95-48-7	o-Cresol	91,908	727,480	677,434	602,507	510,599	555.6
—	Cyanide compounds	5,257,170	3,367,472	4,382,767	5,576,063	318,893	6.1
74-90-8	Hydrogen cyanide	2,851,188	3,056,324	3,143,263	3,165,086	313,898	11.0
1163-19-5	Decabromodiphenyl oxide	51,846	712,168	470,311	244,826	192,980	372.2
—	Selenium compounds	63,906	200,864	249,350	187,277	123,371	193.1
—	Cobalt compounds	177,532	233,306	274,339	299,601	122,069	68.8
1313-27-5	Molybdenum trioxide	544,569	477,177	471,573	665,514	120,945	22.2
140-88-5	Ethyl acrylate	247,458	204,650	197,503	354,321	106,863	43.2
105-67-9	2,4-Dimethylphenol	37,174	86,647	122,702	131,585	94,411	254.0
85-44-9	Phthalic anhydride	552,214	487,361	430,981	605,986	53,772	9.7

these reduction patterns with the decreases for all other TRI chemicals highlights the positive role the 33/50 Program has played in industry's environmental efforts.

Perhaps the most anticipated result was the final reduction total. The 33/50 Program set a 50% reduction goal for 1995, the final year of the initiative, based on 1988 data. Although this goal was met one year early with the 1994 data, the question was the degree to which the 50% would be surpassed with the 1995 data. In fact, releases and transfers for the 17 chemicals decreased by 831,000 pounds, or 55.6%.

Table 5-11 provides additional breakdowns for time frames within the 33/50 Program's seven years. The first is the period 1988-1990. This corresponds to the two years before EPA

contacted companies about joining. When EPA launched the 33/50 Program in 1990, 1988 was chosen as the baseline because at the time the 1988 TRI data was the most recent data available. During this period, releases and transfers for the 17 chemicals decreased by 15.5%. This pace is roughly the same as the reduction for all the other TRI chemicals (14.4%). This similarity is unsurprising since there would have been no impetus for companies to target the 33/50 Program chemicals over the other TRI chemicals during those two years.

A noticeable difference is seen during the period 1990-1995 (see Figure 5-2). As stated above, EPA first asked companies to participate in the 33/50 Program in 1991. The 1990-1995 time frame, therefore, would highlight the impact of the program on industry's efforts vis-a-vis the 17 targeted chemicals. In fact, during this period,

²⁵ Does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid.

²⁶ Compound categories do not have CAS numbers (—).

Table 5-11. Releases and Transfers of 33/50 Program Chemicals Compared to Other TRI Chemicals, 1988, 1990, 1994, 1995.²⁷

Year	All TRI Chemicals (Excluding Additions/ Deletions) Pounds	TRI Chemicals Less 33/50 Chemicals Pounds	33/50 Chemicals Only Pounds
1988	4,015,274,693	2,519,785,338	1,495,489,355
1990	3,420,349,063	2,156,389,453	1,263,959,610
1994	2,339,340,001	1,594,908,085	744,431,916
1995	2,257,348,546	1,592,918,680	664,429,866
	Change Percent	Change Percent	Change Percent
1988-1990	-14.8%	-14.4%	-15.5%
1990-1995	-34.0%	-26.1%	-47.4%
1994-1995	-3.5%	-0.1%	-10.7%
1988-1995	-43.8%	-36.8%	-55.6%

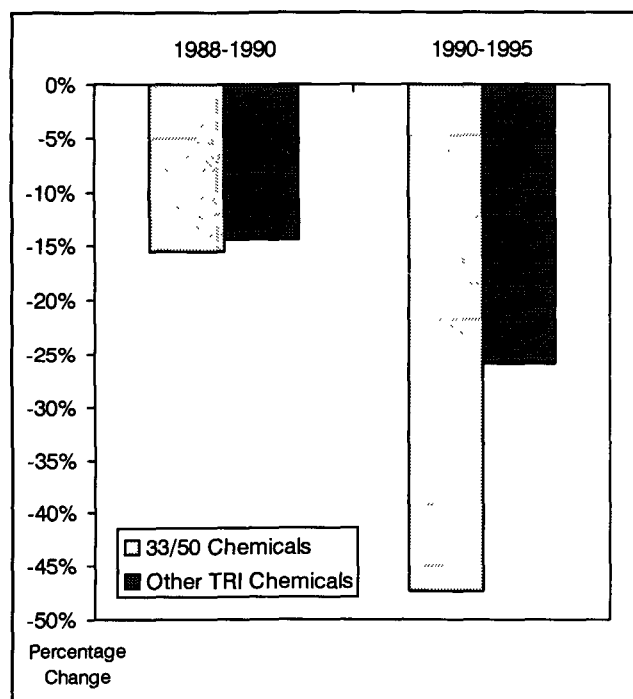


Figure 5-2. Releases and Transfers of 33/50 Program Chemicals Compared to Other TRI Chemicals, 1988-1995.²⁷

the 33/50 Program chemicals declined by over 47%. For all other TRI chemicals, the decrease was 26%. At an average rate of greater than 10% per year, industry almost achieved a 50% reduction using 1990 data as the starting point.

Comparing 1995 data to 1994 data also highlights the positive role of the 33/50 Program. The difference for the 17 chemicals is 10.8% (see Table 5-11). All other TRI chemicals declined by 0.1%. The overall TRI reduction of 3.5%, therefore, in large part reflects the changes of the 33/50 Program chemicals.

On a chemical-by-chemical basis (Figure 5-3), the reduction rates show more dramatic changes for the non-metals. Every non-metal decreased by at least 44% between 1988 and 1995. The biggest percent change was for 1,1,1-trichloroethane, which declined by 88%. This chemical is an ozone depleter and its production has been banned as of January 1, 1996. While in 1988 this

²⁷ Does not include amount for recycling and energy recovery reported for 1991-1995. Also excludes delisted chemicals, chemicals added in 1990, 1991, 1994 and 1995, and aluminum oxide, ammonia, sulfuric acid and hydrochloric acid.

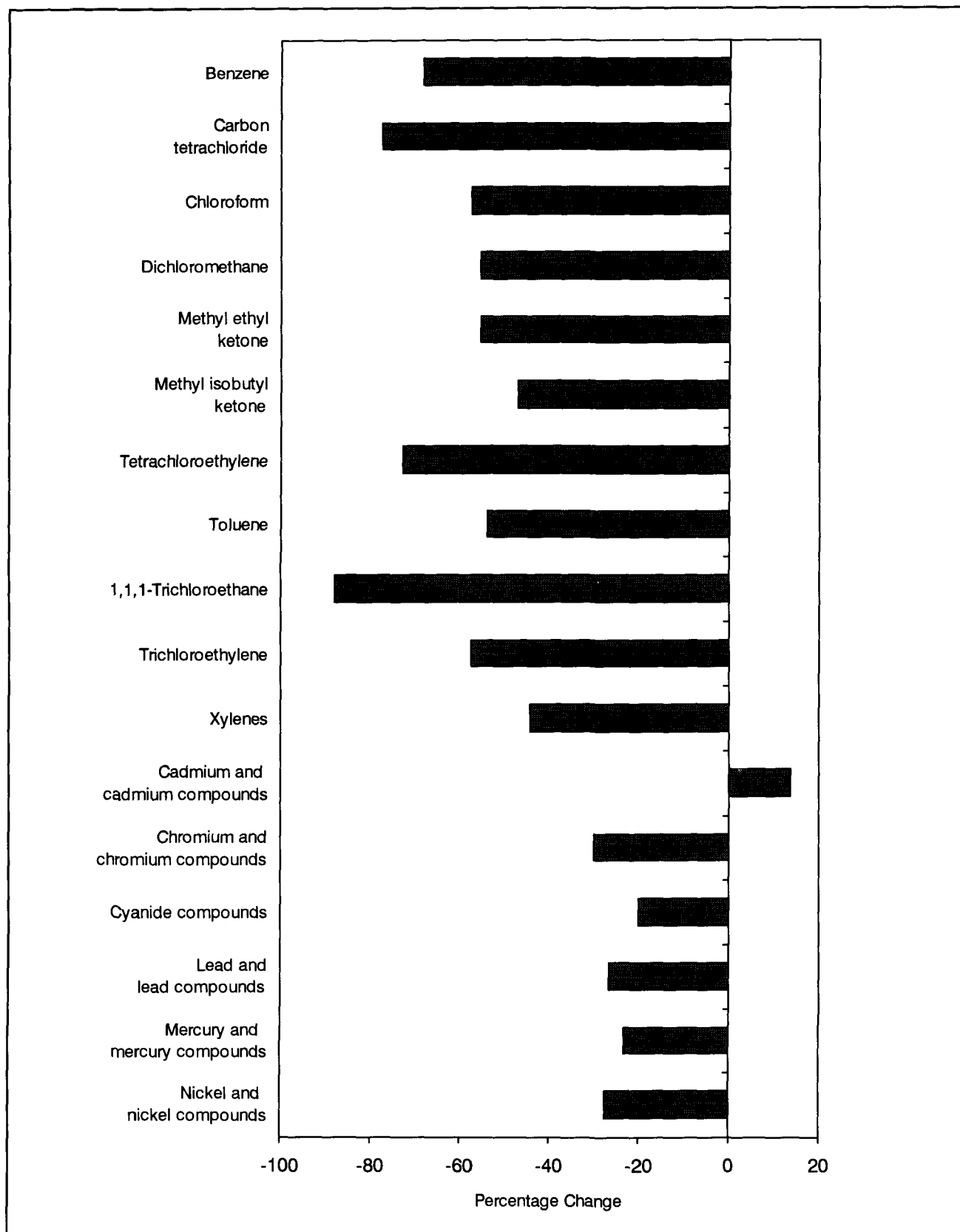


Figure 5-3. Percentage Change in Releases and Transfers of 33/50 Program Chemicals, 1988-1995.²⁸

²⁸ Does not include amounts for transfers to recycling and energy recovery reported for 1991-1995.



Chapter 5 — Year-to-Year Comparison of TRI Data

Table 5-12. TRI Releases and Transfers of 33/50 Program Chemicals, 1988, 1990, 1994, 1995.

CAS Number	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
71-43-2	Benzene	95	465	4,039,259	5,239,734	21,300	275,242	16,468	9,592,003
		94	492	5,385,963	4,280,103	22,294	223,103	25,150	9,936,613
		90	504	14,729,566	10,927,692	25,303	689,066	717,008	27,088,635
		88	483	20,648,053	11,683,118	46,982	825,035	127,921	33,331,109
56-23-5	Carbon tetrachloride	95	69	140,135	254,041	717	53,966	0	448,859
		94	70	226,082	415,870	1,223	12,654	0	655,829
		90	100	419,002	1,320,385	4,718	31,557	1,005	1,776,667
		88	95	1,084,548	2,694,047	15,627	98,050	14,759	3,907,031
67-66-3	Chloroform	95	159	3,326,071	6,907,283	329,330	33,276	4,297	10,600,257
		94	167	3,485,479	7,483,557	375,212	80,002	11,779	11,436,029
		90	192	8,594,655	14,527,935	997,560	89,560	57,992	24,267,702
		88	169	7,790,990	18,197,619	1,124,965	36,000	69,247	27,218,821
75-09-2	Dichloromethane	95	963	22,188,420	33,930,771	28,370	1,140,335	2,064	57,289,960
		94	1,050	25,172,356	37,932,893	52,289	960,942	62,345	64,180,825
		90	1,453	38,208,658	62,753,254	194,764	850,018	21,024	102,027,718
		88	1,674	49,639,287	79,472,242	349,960	1,478,833	157,156	131,097,478
78-93-3	Methyl ethyl ketone	95	2,255	24,861,372	44,485,984	63,120	556,607	87,856	70,054,939
		94	2,422	27,584,990	51,882,531	108,385	575,848	38,168	80,189,922
		90	2,723	45,837,357	88,730,844	94,443	146,209	50,591	134,859,444
		88	2,528	41,980,079	99,076,559	91,476	255,955	166,597	141,570,666
108-10-1	Methyl isobutyl ketone	95	1,001	5,629,446	15,874,810	51,282	158,600	7,041	21,721,179
		94	1,043	6,872,652	18,547,950	80,177	131,600	12,201	25,644,580
		90	1,125	9,875,727	18,538,178	55,593	52,226	24,738	28,546,462
		88	1,011	13,049,874	18,985,959	762,108	116,650	31,770	32,946,361
127-18-4	Tetrachloroethylene	95	428	4,493,166	4,884,751	2,407	20,481	6	9,400,811
		94	467	4,912,796	5,615,514	3,877	4,051	4,349	10,540,587
		90	667	9,351,400	13,597,047	21,510	11,012	1,260	22,982,229
		88	747	16,336,532	19,786,515	33,314	72,250	82,144	36,310,755
108-88-3	Toluene	95	3,370	52,017,387	93,446,998	53,287	303,491	66,306	145,887,469
		94	3,622	58,263,732	111,165,297	82,706	496,440	150,970	170,159,145
		90	4,293	87,840,763	161,852,697	201,580	1,432,923	370,832	251,698,795
		88	4,001	105,975,578	193,159,959	196,957	1,473,666	731,449	301,537,609
71-55-6	1,1,1-Trichloroethane	95	781	10,908,176	11,692,921	1,118	126	39,220	22,641,561
		94	1,232	20,300,113	18,366,045	2,283	102	2,348	38,670,891
		90	4,215	85,759,407	83,134,494	16,984	1,586	62,446	168,974,917
		88	3,921	93,115,800	87,690,472	95,624	1,000	204,923	181,107,819
79-01-6	Trichloroethylene	95	717	12,230,811	13,253,424	1,477	550	3,577	25,489,839
		94	789	14,859,385	15,530,026	1,671	288	4,417	30,395,787
		90	808	19,051,007	20,931,585	14,285	805	12,554	40,010,236
		88	951	26,168,126	29,759,510	13,801	390	21,186	55,963,013
	Xylenes	95	3,393	24,687,698	75,804,849	36,099	95,103	143,527	100,767,276
		94	3,570	27,822,686	87,855,934	55,805	314,461	248,263	116,297,149
		90	3,990	37,452,840	111,908,884	49,549	105,399	423,453	149,940,125
		88	3,648	39,742,449	129,758,941	213,032	144,978	647,989	170,507,389
	Cadmium and cadmium compounds	95	154	10,340	42,712	1,108	109	69,057	123,326
		94	159	8,946	50,255	2,034	170	60,872	122,277
		90	257	31,035	72,265	3,339	1,575	397,523	505,737
		88	205	32,399	90,293	4,147	2,409	389,479	518,727



Table 5-12.

CAS Number	Chemical	Year	Transfers to POTWs Pounds	Transfers Off-site for Treatment Disposal/Other ⁽¹⁾ Pounds	Subtotal Pounds	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Total Transfers ⁽³⁾ Pounds
71-43-2	Benzene	95	217,948	1,851,534	2,069,482	420,044	1,579,514	4,069,040
		94	210,855	2,350,341	2,561,196	555,346	1,657,760	4,774,302
		90	635,478	2,221,513	2,856,991	NA	NA	NA
		88	1,165,252	2,297,179	3,462,431	NA	NA	NA
56-23-5	Carbon tetrachloride	95	473	746,708	747,181	364,083	50,065	1,161,329
		94	574	1,223,623	1,224,197	850,623	17,314	2,092,134
		90	42,050	1,082,188	1,124,238	NA	NA	NA
		88	5,014	1,350,011	1,355,025	NA	NA	NA
67-66-3	Chloroform	95	418,401	1,650,873	2,069,274	175,944	103,428	2,348,646
		94	437,920	2,037,725	2,475,645	351,182	101,775	2,928,602
		90	802,260	1,321,651	2,123,911	NA	NA	NA
		88	1,226,573	1,368,275	2,594,848	NA	NA	NA
75-09-2	Dichloromethane	95	799,574	11,065,752	11,865,326	14,302,050	3,287,580	29,454,956
		94	824,942	11,834,407	12,659,349	20,830,077	3,766,871	37,256,297
		90	1,293,254	9,505,718	10,798,972	NA	NA	NA
		88	1,831,154	22,442,669	24,273,823	NA	NA	NA
78-93-3	Methyl ethyl ketone	95	502,492	6,055,721	6,558,213	23,732,285	42,506,199	72,796,697
		94	410,996	6,649,135	7,060,131	22,247,540	46,559,930	75,867,601
		90	891,591	21,034,820	21,926,411	NA	NA	NA
		88	964,168	29,258,802	30,222,970	NA	NA	NA
108-10-1	Methyl isobutyl ketone	95	398,689	1,679,129	2,077,818	16,264,345	18,040,099	36,382,262
		94	488,749	1,738,556	2,227,305	17,959,794	18,858,914	39,046,013
		90	1,259,294	4,599,709	5,859,003	NA	NA	NA
		88	1,509,030	10,509,270	12,018,300	NA	NA	NA
127-18-4	Tetrachloroethylene	95	14,996	2,043,768	2,058,764	6,585,432	1,094,487	9,738,683
		94	62,058	2,158,306	2,220,364	7,459,941	857,453	10,537,758
		90	450,922	4,548,481	4,999,403	NA	NA	NA
		88	558,691	5,582,693	6,141,384	NA	NA	NA
108-88-3	Toluene	95	849,352	21,892,389	22,741,741	24,457,543	76,070,848	123,270,132
		94	899,405	22,853,630	23,753,035	24,113,967	80,546,924	128,413,926
		90	1,769,459	40,562,359	42,331,818	NA	NA	NA
		88	3,593,521	62,128,954	65,722,475	NA	NA	NA
71-55-6	1,1,1-Trichloroethane	95	23,122	1,395,249	1,418,371	3,742,913	1,011,715	6,172,999
		94	6,454	2,579,432	2,585,886	7,017,946	1,848,618	11,452,450
		90	173,194	13,124,628	13,297,822	NA	NA	NA
		88	305,358	19,428,542	19,733,900	NA	NA	NA
79-01-6	Trichloroethylene	95	15,073	1,079,073	1,094,146	8,487,722	1,145,534	10,727,402
		94	50,325	2,838,850	2,889,175	8,294,181	1,203,719	12,387,075
		90	11,949	3,962,121	3,974,070	NA	NA	NA
		88	85,652	6,509,867	6,595,519	NA	NA	NA
	Xylenes	95	931,209	16,485,163	17,416,372	43,930,592	72,661,343	134,008,307
		94	712,558	10,337,829	11,050,387	40,153,871	78,895,568	130,099,826
		90	1,956,513	25,405,616	27,362,129	NA	NA	NA
		88	4,225,457	37,956,694	42,182,151	NA	NA	NA
	Cadmium and cadmium compounds	95	4,194	1,949,051	1,953,245	1,793,320	2,866	3,749,431
		94	3,018	2,093,733	2,096,751	2,673,297	2,717	4,772,765
		90	13,762	1,320,148	1,333,910	NA	NA	NA
		88	21,613	1,286,818	1,308,431	NA	NA	NA

Table 5-12. TRI Releases and Transfers of 33/50 Program Chemicals, 1988, 1990, 1994, 1995, Continued.⁽²⁾

CAS Number	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
	Chromium and chromium compounds	95	3,205	446,601	751,383	152,615	57,780	21,652,821	23,061,200
		94	3,243	645,983	531,982	179,872	38,109	21,800,804	23,196,750
		90	3,108	574,178	577,222	451,166	83,237	25,983,784	27,669,587
		88	2,448	626,325	701,374	401,219	54,902	40,215,263	41,999,083
	Cyanide compounds	95	285	275,401	3,278,202	89,619	5,082,794	15,133	8,741,149
		94	295	199,257	3,109,481	103,345	4,099,986	13,961	7,526,030
		90	370	240,948	1,721,580	129,669	4,981,412	19,720	7,093,329
		88	428	657,222	1,699,447	197,544	5,445,176	108,969	8,108,358
	Lead and lead compounds	95	1,639	735,144	1,297,578	64,753	912	14,683,521	16,781,908
		94	1,684	606,462	1,214,013	67,243	1,263	15,153,615	17,042,596
		90	1,914	908,756	1,387,079	133,540	1,648	18,985,861	21,416,884
		88	1,596	839,273	1,822,549	242,154	2,760	26,684,055	29,590,791
	Mercury and mercury compounds	95	34	10,698	5,613	328	6	1,016	17,661
		94	29	9,757	4,128	321	7	1,351	15,564
		90	63	14,793	8,756	809	21	4,199	28,578
		88	52	16,797	8,484	1,406	27	13,279	39,993
	Nickel and nickel compounds	95	2,658	253,843	336,794	76,732	113,506	2,662,954	3,443,829
		94	2,622	533,046	277,929	98,902	62,941	1,699,365	2,672,183
		90	2,357	395,022	326,891	152,262	268,958	5,094,379	6,237,512
		88	1,739	425,589	297,978	222,619	239,263	3,609,583	4,795,032
	Total for 33/50 Chemicals	95	21,576	166,253,968	311,487,848	973,662	7,892,884	39,454,864	526,063,226
		94	22,956	196,889,685	364,263,508	1,237,639	7,001,967	39,289,958	608,682,757
		90	28,139	359,285,114	592,316,788	2,547,074	8,747,212	52,228,369	1,015,124,557
		88	25,696	418,128,921	694,885,066	4,012,935	10,247,344	73,275,769	1,200,550,035
	All Other TRI Chemicals	95	39,354	135,955,818	558,953,013	34,820,593	128,858,740	225,796,768	1,084,384,932
		94	39,967	152,745,240	550,019,027	38,737,241	107,168,264	243,508,020	1,092,177,792
		90	42,229	207,275,764	663,419,709	103,548,645	151,142,197	343,336,163	1,468,722,478
		88	36,942	261,804,905	801,892,857	160,453,580	151,691,788	385,956,058	1,761,799,188
	Total for All TRI Chemicals	95	60,930	302,209,786	870,440,861	35,794,255	136,751,624	265,251,632	1,610,448,158
		94	62,923	349,634,925	914,282,535	39,974,880	114,170,231	282,797,978	1,700,860,549
		90	70,368	566,560,878	1,255,736,497	106,095,719	159,889,409	395,564,532	2,483,847,035
		88	62,638	679,933,826	1,496,777,923	164,466,515	161,939,132	459,231,827	2,962,349,223

chemical had the third highest release-and-transfer total of the 17 chemicals, by 1995 it had dropped to eighth.

The only chemical of the 33/50 Program which had an overall increase was cadmium and cadmium compounds. As Table 5-12 indicates, this increase resulted from transfers off-site. Transfers to POTWs and all releases for this chemical showed net decreases. All other metals in the 33/50 Program declined by 20% or more.

Waste Management Data, 1991-1995

Table 5-13 illustrates the change in the quantities of TRI chemicals undergoing each waste management activity from 1991 to 1995. The amounts for each year are taken from the Form R submitted for that year (from the "current year" column). In other words, the 1991 data were taken from the 1991 submissions, the 1992 data from the 1992 submissions, and so on. These tables exclude all data for ammonia, hydrochloric acid, sulfuric acid, delisted chemicals,



Table 5-12, Cont.

CAS Number	Chemical	Year	Transfers to POTWs Pounds	Transfers Off-site for Treatment Disposal/Other ²⁹ Pounds	Subtotal Pounds	Transfers to Recycling Pounds	Transfers to Energy Recovery Pounds	Total Transfers ³¹ Pounds
	Chromium and chromium compounds	95	358,500	26,254,746	26,613,246	123,811,523	179,718	150,604,487
		94	429,629	21,546,720	21,976,349	146,670,124	94,980	168,741,453
		90	1,144,505	34,319,211	35,463,716	NA	NA	NA
		88	2,093,102	27,005,785	29,098,887	NA	NA	NA
	Cyanide compounds	95	240,813	608,670	849,483	24,708	3,773	877,964
		94	171,464	572,418	743,882	27,718	8,344	779,944
		90	141,644	1,303,818	1,445,462	NA	NA	NA
		88	1,162,724	2,719,177	3,881,901	NA	NA	NA
	Lead and lead compounds	95	58,334	27,795,707	27,854,041	351,135,515	68,930	379,058,486
		94	89,521	28,711,176	28,800,697	352,192,736	84,961	381,078,394
		90	192,992	56,954,412	57,147,404	NA	NA	NA
		88	213,674	31,062,065	31,275,739	NA	NA	NA
	Mercury and mercury compounds	95	24	225,685	225,709	58,206	505	284,420
		94	15	42,567	42,582	24,908	0	67,490
		90	311	213,305	213,616	NA	NA	NA
		88	1,892	274,767	276,659	NA	NA	NA
	Nickel and nickel compounds	95	179,866	10,574,362	10,754,228	100,382,663	7,189	111,144,080
		94	218,216	11,164,012	11,382,228	107,770,286	4,091	119,156,605
		90	318,358	16,257,819	16,576,177	NA	NA	NA
		88	904,816	13,890,061	14,794,877	NA	NA	NA
	Total for 33/50 Chemicals	95	5,013,060	133,353,580	138,366,640	719,668,888	217,813,793	1,075,849,321
		94	5,016,699	130,732,460	135,749,159	759,193,537	234,509,939	1,129,452,635
		90	11,097,536	237,737,517	248,835,053	NA	NA	NA
		88	19,867,691	275,071,629	294,939,320	NA	NA	NA
	All Other TRI Chemicals	95	149,648,930	358,884,818	508,533,748	1,421,656,483	267,842,666	2,198,032,897
		94	153,447,904	349,282,389	502,730,293	1,409,573,333	220,951,147	2,133,254,773
		90	223,267,960	464,399,015	687,666,975	NA	NA	NA
		88	234,855,234	523,130,916	757,986,150	NA	NA	NA
	Total for All TRI Chemicals	95	154,661,990	492,238,398	646,900,388	2,141,325,371	485,656,459	3,273,882,218
		94	158,464,603	480,014,849	638,479,452	2,168,766,870	455,461,086	3,262,707,408
		90	234,365,496	702,136,532	936,502,028	NA	NA	NA
		88	254,722,925	798,202,545	1,052,925,470	NA	NA	NA

and chemicals that were added in 1994 and 1995. In 1995, facilities reported total production-related waste of 19.9 billion pounds.

Information required by the PPA can help facilities and the public assess progress in pollution prevention and in the management of TRI chemicals in waste. The data can be used to analyze trends in total quantities of TRI chemi-

cals in waste to see if facilities are reducing the amount of waste generated. The data also can be used to examine trends in the quantities of TRI chemicals undergoing each waste management method, to see whether facilities are moving up the waste management hierarchy. The PPA data can help the public assess which industries and facilities are implementing source reduction, which types of source reduction activities they

²⁹ Does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid.

³⁰ "Other" indicates: For 1994 and 1995, transfers reported with no waste management codes or invalid codes. For 1988 and 1990, transfers reported with no waste management codes, invalid codes, or codes not required to be reported in 1988 and 1990.

³¹ NA: Transfers for recycling and energy recovery were not required to be reported until 1991. Therefore, total transfers in 1988 and 1990 are not comparable to total transfers reported for 1994 or 1995.

Table 5-13. Quantities of TRI Chemicals in Waste, 1991-1995.³²

Management Activity	1991 Pounds	1992 Pounds	1993 Pounds	1994 Pounds	1995 Pounds
Recycled On-site	6,217,882,991	5,544,719,746	6,257,477,292	6,565,302,903	7,176,925,311
Recycled Off-site	1,752,017,474	2,087,429,591	1,995,454,098	2,191,460,110	2,214,135,775
Energy Recovery On-site	2,956,158,423	2,864,679,425	2,694,410,435	3,184,487,727	2,765,872,639
Energy Recovery Off-site	443,806,048	439,475,936	454,367,487	460,189,167	477,808,034
Treated On-site	4,351,264,670	4,527,788,422	4,416,800,754	4,526,552,695	5,004,993,890
Treated Off-site	435,888,428	403,749,389	366,117,363	373,501,380	400,359,231
Quantity Released/Disposed of	2,463,413,406	2,289,692,802	2,134,348,972	1,942,243,695	1,838,226,008
Total Production-related Waste	18,620,431,440	18,157,535,311	18,318,976,401	19,243,737,677	19,878,320,888
Non-Production related Waste	22,364,716	29,783,087	41,818,494	56,357,645	30,604,050

Management Activity	1991-1992 Change Percent	1992-1993 Change Percent	1993-1994 Change Percent	1994-1995 Change Percent	1991-1995 Change Percent
Recycled On-site	-10.8	12.9	4.9	9.3	15.4
Recycled Off-site	19.1	-4.4	9.8	1.0	26.4
Energy Recovery On-site	-3.1	-5.9	18.2	-13.1	-6.4
Energy Recovery Off-site	-1.0	3.4	1.3	3.8	7.7
Treated On-site	4.1	-2.5	2.5	10.6	15.0
Treated Off-site	-7.4	-9.3	2.0	7.2	-8.2
Quantity Released/Disposed of	-7.1	-6.8	-9.0	-5.4	-25.4
Total Production-related Waste	-2.5	0.9	5.0	3.3	6.8
Non-Production related Waste	33.2	40.4	34.8	-45.7	36.8

are implementing, and how they identified opportunities for source reduction. Information about how source reduction opportunities were identified can aid in determining the more successful routes of delivery for source reduction information and technology transfer. The PPA data do not allow for an accurate quantification of source reduction.

From 1991, the first year of PPA reporting, to 1992, the total quantity of TRI chemicals reported in production-related waste decreased 2.5%. Since then, however, total production-related waste has risen annually, for a net increase from 1991 to 1995 of 6.8%. Much of

this change has occurred in recycling: an increase of 959.0 million pounds in on-site recycling over the four years and 462.1 million pounds in off-site recycling (15.4% and 26.4% increases, respectively). Facilities also reported on-site treatment 15.0% higher in 1995 than in 1991, an increase of 653.7 million pounds.

In 1995, non-production related waste (resulting from accidents or other one-time events) declined for the first time since PPA reporting began. Having risen from 22.4 million pounds in 1991 to 56.4 million in 1994, the quantity of TRI chemicals in non-production related waste fell to 30.6 million pounds, a decrease of 45.7% in the last year.

³² Data from Form R of year indicated. Does not include delisted chemicals, chemicals added in 1994 and 1995, and ammonia, hydrochloric acid, and sulfuric acid.

Table 5-14. Actual and Projected Quantities of TRI Chemicals in Waste, 1991, 1994-1997.⁸³

Management Activity	1991		1994		1995		Projected			
	Pounds	Percent	Pounds	Percent	Pounds	Percent	1996		1997	
							Pounds	Percent	Pounds	Percent
Recycled On-site	6,217,882,991	33.4	6,565,302,903	34.1	7,176,925,311	36.1	7,234,495,234	36.2	7,454,991,265	37.0
Recycled Off-site	1,752,017,474	9.4	2,191,460,110	11.4	2,214,135,775	11.1	2,226,910,562	11.1	2,245,852,707	11.2
Energy Recovery On-site	2,956,158,423	15.9	3,184,487,727	16.5	2,765,872,639	13.9	2,808,820,021	14.1	2,766,631,126	13.7
Energy Recovery Off-site	443,806,048	2.4	460,189,167	2.4	477,808,034	2.4	465,510,797	2.3	460,788,644	2.3
Treated On-site	4,351,264,670	23.4	4,526,552,695	23.5	5,004,993,890	25.2	5,050,237,129	25.3	5,081,207,570	25.2
Treated Off-site	435,888,428	2.3	373,501,380	1.9	400,359,231	2.0	371,047,632	1.9	372,055,773	1.8
Quantity Released/Disposed of	2,463,413,406	13.2	1,942,243,695	10.1	1,838,226,008	9.2	1,820,621,689	9.1	1,748,697,935	8.7
Total Production-related Waste	18,620,431,440	100.0	19,243,737,677	100.0	19,878,320,888	100.0	19,977,643,064	100.0	20,130,225,020	100.0

Table 5-14 shows the actual and projected quantities of TRI chemicals in waste for the baseline year of 1991 and for 1994 through 1997. Quantities for 1991 were taken from the 1991 reports, and quantities for 1994 were taken from the 1994 reports. Quantities for 1995 through 1997 were taken from the 1995 reports, where facilities report estimates for the current reporting year (1995) and projections for the next two years (1996 and 1997). This table, like Table 5-13, excludes data for ammonia, hydrochloric acid, sulfuric acid, delisted chemicals, and chemicals that were added for the 1994 and 1995 reporting years. (As indicated in the Introduction to this chapter, this explains differences between totals in these tables and those presented in Chapter 4.)

As discussed above, the total quantity of TRI chemicals in production-related waste has increased significantly since 1991. Facilities project that the quantity of TRI chemicals in

waste will continue to rise, to 20.1 billion pounds in 1997, although at a slower rate (1.3% projected increase over two years). Facility projections for 1996 and 1997 show that facilities do not expect much change in how they handle their waste in the next two years. Recycling is expected to account for 48.2% of waste management in 1997, compared to 47.2% in 1995. Facilities project even less change in other waste management categories. The data indicate that facilities anticipate little or no progress in moving up the waste management hierarchy in the next two years.

Chemical-Specific Data

Table 5-15 presents release and transfer information for all TRI chemicals in the 1988-1995 "core" chemical list for which reports have been received in at least one year.

⁸³ Data for 1991 from 1991 Form R, for 1994 from 1994 Form R, all other years from 1995 Form R. Does not include delisted chemicals, chemicals added in 1994 and 1995, and ammonia, hydrochloric acid, and sulfuric acid.



Chapter 5 — Year-to-Year Comparison of TRI Data

Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered).⁶⁴

CAS Number ⁶⁵	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
75-07-0	Acetaldehyde	95	230	1,609,764	11,813,290	225,846	605,885	155,355	14,410,140
		94	229	1,286,412	10,862,908	286,184	602,167	20,363	13,058,034
		93	107	1,733,349	4,856,946	47,771	2,623,334	1,001	9,262,401
		88	66	2,689,238	4,260,011	98,236	2,219,105	194,958	9,461,548
60-35-5	Acetamide	95	3	7	1	0	920,000	0	920,008
		94	4	8	19	1	466,000	0	466,028
		93	4	7	8	1	1,089,000	0	1,089,016
		88	1	0	0	0	0	0	0
75-05-8	Acetonitrile	95	86	698,612	323,270	7,474	27,837,181	12	28,866,549
		94	86	815,855	357,211	14,580	17,025,679	3,229	18,216,554
		93	78	997,529	340,156	15,283	15,707,895	18	17,060,881
		88	67	1,408,588	786,151	42,223	16,739,010	1,790	18,977,762
107-02-8	Acrolein	95	20	10,200	61,099	4	83,465	0	154,768
		94	17	9,454	55,291	440	107,999	0	173,184
		93	15	11,765	12,004	0	102,335	0	126,104
		88	12	17,352	16,300	0	68,950	500	103,102
79-06-1	Acrylamide	95	80	6,922	12,155	1,929	6,120,154	235	6,141,395
		94	76	8,815	7,164	2,677	5,198,814	155	5,217,625
		93	78	24,241	4,317	2,511	4,010,509	168	4,041,746
		88	59	17,298	8,721	3,124	2,198,000	756	2,227,899
79-10-7	Acrylic acid	95	187	273,322	253,822	2,648	7,840,000	47	8,369,839
		94	186	271,143	222,599	1,928	6,436,000	113	6,931,783
		93	186	339,928	257,127	1,528	3,507,000	125	4,105,708
		88	158	585,041	215,005	16,646	22,262,010	15,950	23,094,652
107-13-1	Acrylonitrile	95	105	270,587	997,712	9,539	5,193,028	618	6,471,484
		94	114	333,620	1,130,807	20,377	4,894,487	278	6,379,569
		93	118	355,997	1,066,463	3,078	3,823,381	6,934	5,255,853
		88	113	1,019,194	3,200,967	6,491	4,562,713	2,150	8,791,515
107-05-1	Allyl chloride	95	20	22,416	29,630	95	0	41	52,182
		94	20	149,565	51,919	7	0	2	201,493
		93	19	75,867	30,573	0	0	2	106,442
		88	20	93,811	55,558	430	250	200	150,249
7429-90-5	Aluminum (fume or dust)	95	311	253,115	1,722,557	36,693	250	1,872,233	3,884,848
		94	303	388,472	1,544,306	24,574	301	1,143,448	3,101,101
		93	294	298,518	2,088,081	36,376	11	922,602	3,345,588
		88	357	1,226,731	2,455,267	91,518	250	3,177,625	6,951,391
60-09-3	4-Aminoazobenzene	95	1	0	0	0	64	0	64
		94	1	0	1	0	350	0	351
		93	1	0	1	0	370	0	371
		88	1	0	0	0	537	0	537
92-67-1	4-Aminobiphenyl	95	1	0	0	0	2	0	2
		94	1	0	0	0	5	0	5
		93	1	0	0	0	3	0	3
		88	1	0	10	0	4	0	14
62-53-3	Aniline	95	66	115,917	85,586	8,943	1,222,381	4,193	1,437,020
		94	67	148,063	153,841	8,835	1,664,033	1,554	1,976,326
		93	72	232,358	196,005	4,588	1,365,557	1,381	1,799,889
		88	68	323,900	388,869	16,105	3,582,975	12,822	4,324,671
90-04-0	o-Anisidine	95	7	966	65	74	0	0	1,105
		94	7	891	63	80	0	30	1,064
		93	7	865	12	81	0	116	1,074
		88	6	501	1,792	285	0	250	2,828



Table 5-15.

Chemical	Year	Transfers to Recycling ³⁶ Pounds	Transfers to Energy Recovery ³⁵ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
Acetaldehyde	95	31,823	234,670	1,244,782	487,176	1,099	0	1,999,550
	94	28,005	260,259	432,543	460,301	992	0	1,182,100
	93	8,600	226,932	212,800	282,226	1,211	0	731,769
	88	NA	NA	161,761	160,438	24,930	0	NA
Acetamide	95	0	0	323	0	0	0	323
	94	0	0	846	0	0	0	846
	93	0	0	889	0	0	0	889
	88	NA	NA	0	0	250	0	NA
Acetonitrile	95	2,071,155	4,661,165	4,228,558	925,609	10,892	0	11,897,379
	94	1,741,949	5,740,674	3,841,987	1,046,438	66,890	0	12,437,938
	93	1,926,290	5,648,422	4,490,557	1,001,871	156,291	0	13,223,431
	88	NA	NA	3,772,221	600,450	416,333	214,260	NA
Acrolein	95	0	43,323	11,361	0	0	0	54,684
	94	0	11,893	3,857	0	0	0	15,750
	93	0	8,152	8	0	0	0	8,160
	88	NA	NA	250	250	0	0	NA
Acrylamide	95	0	43,729	39,747	176,069	3,083	0	262,628
	94	0	41,953	50,620	82,086	3,891	0	178,550
	93	171	57,337	78,461	85,857	6,623	0	228,449
	88	NA	NA	14,458	13,540	97,582	0	NA
Acrylic acid	95	34,867	5,194,184	426,232	53,283	35,421	0	5,743,987
	94	71,070	5,364,877	472,255	37,103	57,642	0	6,002,947
	93	62,354	7,922,205	243,914	37,551	40,274	47	8,306,345
	88	NA	NA	108,914	23,262	134,139	0	NA
Acrylonitrile	95	69,716	716,604	939,112	143,393	4,917	0	1,873,742
	94	100	425,040	835,026	169,644	8,738	0	1,438,548
	93	0	784,832	769,225	201,949	15,285	0	1,771,291
	88	NA	NA	1,388,052	955,739	151,450	0	NA
Allyl chloride	95	0	1,506	413,027	11	13	0	414,557
	94	0	15,149	462,055	14	37	0	477,255
	93	0	8,121	459,481	14	149	0	467,765
	88	NA	NA	208,328	14,900	747	0	NA
Aluminum (fume or dust)	95	17,963,683	164,914	304,717	11,484	6,143,170	0	24,587,968
	94	21,676,523	245,466	147,542	9,417	12,554,174	0	34,633,122
	93	25,105,635	178,718	96,722	7,373	7,000,955	255	32,389,658
	88	NA	NA	2,457,125	15,217	14,368,041	12,756	NA
4-Aminoazobenzene	95	0	0	0	0	0	0	0
	94	0	0	0	0	0	0	0
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	0	0	NA
4-Aminobiphenyl	95	0	0	0	0	0	0	0
	94	0	0	0	0	0	0	0
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	0	0	NA
Aniline	95	0	259,000	319,577	986,966	21,546	0	1,587,089
	94	0	1,124,207	592,205	1,542,912	126,195	0	3,385,519
	93	3,400	931,875	523,651	1,483,800	400,252	0	3,342,978
	88	NA	NA	468,311	2,106,510	346,206	16,050	NA
o-Anisidine	95	0	0	0	5,100	3	0	5,103
	94	0	0	0	2,171	1	0	2,172
	93	0	0	0	0	0	0	0
	88	NA	NA	0	768	3	0	NA



Chapter 5 — Year-to-Year Comparison of TRI Data

Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾
Continued.

CAS Number ⁽³⁾	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
104-94-9	p-Anisidine	95	2	0	5	0	0	0	5
		94	2	0	10	5	0	0	15
		93	2	5	7	5	0	5	22
		88	2	0	10	250	0	250	510
120-12-7	Anthracene	95	69	26,450	52,871	4,942	0	1,642	85,905
		94	69	33,964	49,038	341	0	5,864	89,207
		93	84	22,099	51,988	589	0	7,149	81,825
		88	139	146,223	55,952	4,382	0	10,856	217,413
7440-36-0	Antimony	95	129	4,892	24,676	6,592	0	18,786	54,946
		94	123	4,741	18,635	98,466	0	10,226	132,068
		93	136	3,532	15,737	10,074	0	81,529	110,872
		88	152	10,789	59,127	11,114	2,100	903,916	987,046
—	Antimony compounds	95	532	39,125	63,620	29,346	11,332	1,167,331	1,310,754
		94	526	41,285	51,354	45,682	40,224	1,266,727	1,445,272
		93	509	33,263	55,372	27,575	3,707	878,970	998,887
		88	269	58,941	106,587	31,178	9,200	1,935,018	2,140,924
7440-38-2	Arsenic	95	92	2,444	4,408	299	0	27,351	34,502
		94	89	9,272	7,937	1,009	0	4,883	23,101
		93	99	2,492	31,497	1,643	0	311,263	346,895
		88	78	2,608	5,079	1,282	0	181,267	190,236
—	Arsenic compounds	95	297	69,007	55,814	4,936	55,000	1,325,102	1,509,859
		94	294	12,285	67,765	7,602	60,400	1,953,924	2,101,976
		93	306	8,845	85,243	5,756	52,000	2,250,594	2,402,438
		88	273	43,461	223,791	6,243	27,400	4,946,184	5,247,079
1332-21-4	Asbestos (friable)	95	72	1,055	2,590	1	0	131,404	135,050
		94	86	3,080	2,882	260	0	288,146	294,368
		93	95	3,904	4,499	255	0	537,783	546,441
		88	146	11,043	37,453	10,699	0	2,111,880	2,171,075
7440-39-3	Barium	95	73	35,972	55,114	6,279	0	219,823	317,188
		94	57	76,327	5,845	6,064	0	267,704	355,940
		93	65	68,179	31,880	5,259	0	291,141	396,459
		88	142	174,401	92,410	18,650	0	6,721,686	7,007,147
—	Barium compounds	95	552	59,327	96,345	53,617	0	314,550	523,839
		94	623	101,718	216,710	53,581	250	322,457	694,716
		93	993	233,651	411,166	73,452	2,491	2,605,253	3,326,013
		88	627	152,892	873,280	104,302	2,773	5,651,655	6,784,902
98-87-3	Benzal chloride	95	4	1,095	17	0	0	0	1,112
		94	3	163	12	0	0	0	175
		93	3	322	11	0	0	0	333
		88	3	5,252	6	0	0	0	5,258
55-21-0	Benzamide	95	No Reports Received						
		94	No Reports Received						
		93	No Reports Received						
		88	1	250	250	250	250	0	1,000
71-43-2	Benzene	95	465	4,039,259	5,239,734	21,300	275,242	16,468	9,592,003
		94	492	5,385,963	4,280,103	22,294	223,103	25,150	9,936,613
		93	475	6,753,620	4,347,598	20,295	356,660	31,220	11,509,393
		88	483	20,648,053	11,683,118	46,982	825,035	127,921	33,331,109
92-87-5	Benzidine	95	No Reports Received						
		94	1	250	0	0	0	0	250
		93	1	16	0	0	0	0	16
		88	No Reports Received						



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ³⁶ Pounds	Transfers to Energy Recovery ³⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
p-Anisidine	95	0	0	0	5	0	0	5
	94	0	0	0	5	0	0	5
	93	0	0	0	2	0	0	2
	88	NA	NA	0	0	0	0	NA
Anthracene	95	16,937	78,942	3,467	654	48,140	0	148,140
	94	38,652	65,121	9,487	630	60,186	0	174,076
	93	9,151	139,833	21,348	609	66,249	0	237,190
	88	NA	NA	73,023	20,419	204,665	1,250	NA
Antimony	95	5,588,224	1,730	71,999	27,386	78,869	5	5,768,213
	94	3,100,945	3,165	22,943	55,605	104,519	0	3,287,177
	93	4,002,282	1,932	4,957	31,110	220,719	0	4,261,000
	88	NA	NA	22,979	40,228	568,925	500	NA
Antimony compounds	95	3,269,017	49,141	817,684	85,744	3,048,957	10,830	7,281,373
	94	3,533,309	31,974	571,795	82,023	4,282,127	951	8,502,179
	93	1,977,928	33,440	358,948	67,828	2,780,226	254	5,218,624
	88	NA	NA	138,456	67,108	2,184,568	1,450	NA
Arsenic	95	189,754	2,650	46,620	68	43,208	0	282,300
	94	836,449	0	10,738	181	47,647	0	895,015
	93	266,578	25	85,025	353	95,348	0	447,329
	88	NA	NA	1,020	1,928	62,664	35	NA
Arsenic compounds	95	423,946	752	1,295,253	248	1,345,006	0	3,065,205
	94	296,314	3	1,044,606	306	1,702,452	0	3,043,681
	93	305,484	8	656,974	683	2,728,771	260	3,692,180
	88	NA	NA	11,887	3,126	1,402,790	9,573	NA
Asbestos (friable)	95	0	0	5	752	4,101,565	0	4,102,322
	94	0	0	260	2	4,064,593	0	4,064,855
	93	0	0	94,250	757	5,294,318	0	5,389,325
	88	NA	NA	170,934	68,148	12,135,707	1,010,000	NA
Barium	95	160,557	509	104,111	4,164	313,310	250	582,901
	94	127,098	19	6,050	5,925	222,758	0	361,850
	93	45,113	90	3,116	4,528	394,093	0	446,940
	88	NA	NA	89,045	205,209	1,663,835	10,412	NA
Barium compounds	95	1,695,448	91,459	1,441,932	381,063	4,475,611	0	8,085,513
	94	1,635,218	96,833	1,518,494	205,016	5,075,689	332	8,531,582
	93	1,501,171	216,268	2,733,633	342,284	10,896,168	28,676	15,718,200
	88	NA	NA	828,870	823,073	16,386,093	297,371	NA
Benzal chloride	95	0	260,000	0	5	0	0	260,005
	94	0	54,000	0	0	0	0	54,000
	93	0	44,000	0	0	0	0	44,000
	88	NA	NA	95,878	0	7,308	0	NA
Benzamide	95	No Reports Received						
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA	0	0	750	0	NA
Benzene	95	420,044	1,579,514	1,780,153	217,948	71,381	0	4,069,040
	94	555,346	1,657,760	2,146,401	210,855	203,690	250	4,774,302
	93	1,106,028	1,098,388	1,785,910	308,738	94,173	0	4,393,237
	88	NA	NA	1,892,869	1,165,252	396,880	7,430	NA
Benzidine	95	No Reports Received						
	94	0	0	0	0	0	0	0
	93	0	0	0	0	0	0	0
	88	NA	NA					NA



Chapter 5 — Year-to-Year Comparison of TRI Data

Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾
Continued.

CAS Number	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
98-07-7	Benzoic trichloride	95	7	6,446	50	0	0	0	6,496
		94	5	2,832	36	0	0	0	2,868
		93	3	5,907	228	0	0	0	6,135
		88	4	24,542	421	0	0	0	24,963
98-88-4	Benzoyl chloride	95	22	14,882	1,867	0	0	0	16,749
		94	20	11,719	1,972	0	0	0	13,691
		93	19	11,339	2,147	0	0	11	13,497
		88	22	28,295	4,719	0	130,000	250	163,264
94-36-0	Benzoyl peroxide	95	64	351	1,692	5	0	10,345	12,393
		94	62	946	1,021	5	0	3,635	5,607
		93	57	744	1,250	5	0	2,070	4,069
		88	50	4,063	2,231	0	5,350	36,050	47,694
100-44-7	Benzyl chloride	95	45	12,695	6,956	40	0	247	19,938
		94	48	16,851	6,316	49	23	126	23,365
		93	48	14,196	6,933	41	35	61	21,266
		88	51	30,689	12,640	640	0	500	44,469
7440-41-7	Beryllium	95	9	3	832	26	0	22,189	23,050
		94	10	1	898	36	0	22,860	23,795
		93	9	3	900	24	0	14,594	15,521
		88	12	550	2,213	74	0	37,000	39,837
—	Beryllium compounds	95	7	0	360	2	0	23,000	23,362
		94	8	0	610	2	0	17,000	17,612
		93	8	2	361	4	0	8,087	8,454
		88	5	1	861	17	0	12,000	12,879
92-52-4	Biphenyl	95	131	493,901	237,841	6,242	30,337	71,864	840,185
		94	132	549,391	79,750	3,733	48,302	5,198	686,374
		93	151	623,625	154,433	4,673	46,966	6,803	836,500
		88	181	631,591	579,701	88,197	82,760	222,297	1,604,546
111-44-4	Bis(2-chloroethyl) ether	95	11	360	185	3	0	0	548
		94	11	2,835	395	7	0	0	3,237
		93	12	12,783	408	6	0	0	13,197
		88	8	4,322	600	1,351	0	0	6,273
542-88-1	Bis(chloromethyl) ether	95	2	0	0	0	0	0	0
		94	2	5	250	0	0	0	255
		93	2	5	250	0	0	0	255
		88	2	1	0	0	0	0	1
108-60-1	Bis(2-chloro-1-methylethyl) ether	95	2	2,710	3,420	0	0	0	6,130
		94	2	1,800	3,090	3,026	0	1	7,917
		93	2	2,670	2,886	3,000	0	84	8,640
		88	2	7,944	15	30,000	0	0	37,959
75-25-2	Bromoform	95	No Reports Received						
		94	No Reports Received						
		93	No Reports Received						
		88	2	0	0	8,600	0	0	8,600
74-83-9	Bromomethane	95	42	386,154	2,215,580	14	3,817	0	2,605,565
		94	49	483,863	2,197,112	13	0	0	2,680,988
		93	53	671,770	2,561,774	760	1,100	0	3,235,404
		88	36	428,777	2,356,018	0	1,546	0	2,786,341
106-99-0	1,3-Butadiene	95	184	1,437,480	1,476,081	5,398	0	277	2,919,236
		94	178	1,673,278	1,101,636	7,118	0	396	2,782,428
		93	177	2,205,249	1,029,651	7,600	1,000	350	3,243,850
		88	157	4,056,939	2,945,269	522,504	1,500	7,817	7,534,029



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ⁶³ Pounds	Transfers to Energy Recovery ⁶³ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁶⁷ Pounds	Total Transfers ⁶³ Pounds
Benzoic trichloride	95	0	0	3,018	5	250	0	3,273
	94	0	12	0	0	0	0	12
	93	0	0	251	0	0	0	251
	88	NA	NA	12,795	0	9,777	0	NA
Benzoyl chloride	95	0	80	592,289	5	1,460	0	593,834
	94	0	0	496,694	75	250	0	497,019
	93	0	4,906	956,298	400	250	0	961,854
	88	NA	NA	358,570	180	2,399	0	NA
Benzoyl peroxide	95	10,800	2,671	11,884	32,842	4,760	0	62,957
	94	9,000	2,097	24,166	21,318	11,186	0	67,767
	93	5,050	2,842	9,141	19,504	11,966	0	48,503
	88	NA	NA	38,600	69,946	23,954	0	NA
Benzyl chloride	95	0	430,300	9,565	1,889	3,870	0	445,624
	94	0	401,125	538	6,342	246	0	408,251
	93	0	305,877	5,599	11,106	210	0	322,792
	88	NA	NA	89,160	41,553	9,687	0	NA
Beryllium	95	9,618	0	423	0	6,943	0	16,984
	94	13,751	0	19	0	9,617	0	23,387
	93	121,104	0	539	0	4,619	0	126,262
	88	NA	NA	3	4	3,155	0	NA
Beryllium compounds	95	24,005	0	990	1	1,600	0	26,596
	94	312,617	0	1,060	1	1,850	0	315,528
	93	31,655	0	883	0	2,359	0	34,897
	88	NA	NA	1,391	3	6,900	0	NA
Biphenyl	95	161,181	346,055	205,929	402,012	37,988	250	1,153,415
	94	161,084	309,207	389,864	296,466	29,060	0	1,185,681
	93	134,519	354,373	159,793	771,852	31,969	0	1,452,506
	88	NA	NA	252,521	1,446,614	227,492	0	NA
Bis(2-chloroethyl) ether	95	146,118	203,775	86,019	2,874	0	0	438,786
	94	186,472	162,623	5,045	2,846	0	0	356,986
	93	170,971	100	10,381	7,089	180	0	188,721
	88	NA	NA	27,265	9,621	0	0	NA
Bis(chloromethyl) ether	95	0	0	0	0	0	0	0
	94	0	0	0	0	5	0	5
	93	0	0	0	0	2	0	2
	88	NA	NA	0	0	0	0	NA
Bis(2-chloro-1-methylethyl) ether	95	0	0	0	0	0	0	0
	94	0	0	0	0	0	0	0
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	0	0	NA
Bromoform	95	No Reports Received						
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA	0	0	0	0	NA
Bromomethane	95	0	380	0	0	0	0	380
	94	0	100	750	0	0	0	850
	93	0	3,300	500	0	5	0	3,805
	88	NA	NA	0	0	0	0	NA
1,3-Butadiene	95	7,011,736	34,521	96,020	705	4,788	0	7,147,770
	94	7,328,960	166,970	400,339	537	6,846	0	7,903,652
	93	7,473,983	6,574	102,713	5,892	4,893	0	7,594,055
	88	NA	NA	178,855	44,874	185,398	1,934	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾
Continued.

CAS Number ⁽³⁾	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
141-32-2	Butyl acrylate	95	164	121,697	217,608	2,924	0	559	342,788
		94	166	126,139	139,101	218	0	52	265,510
		93	168	159,647	147,064	779	0	57	307,547
		88	166	165,186	246,676	3,528	0	602	415,992
71-36-3	n-Butyl alcohol	95	1,099	5,489,259	19,876,273	115,353	2,263,357	4,631	27,748,873
		94	1,153	6,416,427	21,978,763	52,481	1,777,216	2,161	30,227,048
		93	1,169	6,765,101	22,384,872	49,172	1,942,044	17,057	31,158,246
		88	1,108	8,975,794	28,706,715	128,130	3,006,660	175,819	40,993,118
78-92-2	sec-Butyl alcohol	95	112	281,548	616,484	6,782	136,172	2,805	1,043,791
		94	112	485,968	508,969	5,902	143,443	5	1,144,287
		93	111	209,748	494,720	4,724	0	9	709,201
		88	92	400,126	697,037	122,291	0	2,600	1,222,054
75-65-0	tert-Butyl alcohol	95	91	509,387	154,445	20,183	1,082,071	751	1,766,837
		94	83	648,069	330,355	179,786	691,738	111	1,850,059
		93	69	1,201,654	374,530	174,289	635,700	349	2,386,522
		88	54	1,207,440	366,697	14,989	674,798	818	2,264,742
106-88-7	1,2-Butylene oxide	95	15	3,658	7,425	1	0	0	11,084
		94	15	5,341	4,702	210	0	0	10,253
		93	15	14,277	6,019	26	0	0	20,322
		88	18	34,973	64,958	3,500	0	250	103,681
123-72-8	Butyraldehyde	95	28	120,634	170,806	821	149,783	10	442,054
		94	28	133,044	146,824	875	87,047	0	367,790
		93	30	170,227	168,053	559	189,447	8,606	536,892
		88	26	691,404	1,527,288	3,812	1,997	31	2,224,532
7440-43-9	Cadmium	95	45	2,480	9,459	458	0	19,938	32,335
		94	45	2,651	7,412	1,264	0	4,146	15,473
		93	53	2,031	13,259	412	0	56,677	72,379
		88	90	9,300	13,130	2,598	0	94,602	119,630
—	Cadmium compounds	95	109	7,860	33,253	650	109	49,119	90,991
		94	114	6,295	42,843	770	170	56,726	106,804
		93	127	7,115	38,886	670	977	66,714	114,362
		88	115	23,099	77,163	1,549	2,409	294,877	399,097
156-62-7	Calcium cyanamide	95	5	5	5	0	0	0	10
		94	5	0	5	0	0	0	5
		93	6	0	5	0	0	5	10
		88	3	12,000	600	0	0	66,000	78,600
133-06-2	Captan	95	15	520	6,760	5	0	5	7,290
		94	18	1,522	6,971	5	0	5	8,503
		93	17	2,146	5,025	5	0	5	7,181
		88	18	4,066	10,803	750	5,100	1,000	21,719
63-25-2	Carbaryl	95	21	1,022	6,802	10	0	1,060	8,894
		94	24	2,668	4,749	10	0	255	7,682
		93	25	3,024	6,202	15	0	265	9,506
		88	23	2,515	5,408	877	0	500	9,300
75-15-0	Carbon disulfide	95	90	3,460,693	80,664,956	39,864	3,985	265	84,169,763
		94	82	3,876,743	80,233,862	56,136	4,305	80	84,171,126
		93	83	3,350,845	98,624,108	16,166	2,805	8	101,993,932
		88	88	3,139,255	120,970,649	39,501	13,400	43,436	124,206,241
56-23-5	Carbon tetrachloride	95	69	140,135	254,041	717	53,966	0	448,859
		94	70	226,082	415,870	1,223	12,654	0	655,829
		93	75	585,481	1,648,678	1,453	34,332	79	2,270,023
		88	95	1,084,548	2,694,047	15,627	98,050	14,759	3,907,031



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ³⁶ Pounds	Transfers to Energy Recovery ³⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
Butyl acrylate	95	207,463	1,143,538	109,335	121,191	73,216	0	1,654,743
	94	107,082	182,031	85,812	107,496	62,877	0	545,298
	93	67,843	70,791	80,493	114,610	69,966	0	403,703
	88	NA	NA	585,394	34,604	18,766	525	NA
n-Butyl alcohol	95	3,262,027	8,627,455	1,516,710	1,772,304	447,145	755	15,626,396
	94	2,651,817	7,773,227	2,216,528	1,819,029	201,799	297	14,662,697
	93	2,240,796	9,213,789	2,093,588	1,519,165	172,691	250	15,240,279
	88	NA	NA	6,841,449	4,524,613	924,519	424,570	NA
sec-Butyl alcohol	95	24,670	6,221,727	39,689	59,663	18,376	0	6,364,125
	94	44,064	5,307,090	75,307	37,320	32,287	0	5,496,068
	93	62,960	5,305,314	37,156	45,689	13,190	0	5,464,309
	88	NA	NA	74,574	41,108	21,351	134,802	NA
tert-Butyl alcohol	95	2,256	27,928,818	973,977	837,780	30,783	0	29,773,614
	94	1,356	29,854,068	1,202,294	743,825	70,466	0	31,872,009
	93	19,424	30,784,513	1,022,575	1,074,364	60,310	0	32,961,186
	88	NA	NA	328,523	1,539,726	56,502	110,250	NA
1,2-Butylene oxide	95	990	326,640	93	0	5	0	327,728
	94	2,650	364,065	0	10	0	0	366,725
	93	0	373,210	16	0	0	0	373,226
	88	NA	NA	250	0	898	0	NA
Butyraldehyde	95	1,300	22,070	13,746	155,918	41	0	193,075
	94	0	17,281	6,555	203,094	1,038	0	227,968
	93	450	479,072	7,079	132,237	1,716	0	620,554
	88	NA	NA	6,197	371,633	117,741	0	NA
Cadmium	95	502,295	633	31,250	810	56,420	4,610	596,018
	94	715,739	0	9,628	599	59,259	0	785,225
	93	642,561	0	34,162	2,160	42,434	0	721,317
	88	NA	NA	83,296	7,894	131,879	2,441	NA
Cadmium compounds	95	1,291,025	2,233	166,707	3,384	1,648,139	41,925	3,153,413
	94	1,957,558	2,717	160,927	2,419	1,863,919	0	3,987,540
	93	1,423,095	1,142	157,551	2,788	3,145,462	0	4,730,038
	88	NA	NA	86,534	13,719	982,168	500	NA
Calcium cyanamide	95	0	0	0	0	0	0	0
	94	0	0	0	0	0	0	0
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	0	0	NA
Captan	95	0	0	418	3	3,868	255	4,544
	94	0	0	2,410	26	1,237	0	3,673
	93	0	0	6,434	29	2,436	0	8,899
	88	NA	NA	511	250	12,434	750	NA
Carbaryl	95	0	0	6,385	5	26,861	0	33,251
	94	0	0	5,222	1	16,491	0	21,714
	93	0	0	18,834	1	16,031	0	34,866
	88	NA	NA	27,582	171	6,198	0	NA
Carbon disulfide	95	250	372,531	15,921	351,949	2,949	0	743,600
	94	426	205,993	31,113	359,388	1,677	0	598,597
	93	5,098	248,766	64,510	226,215	1,329	0	545,918
	88	NA	NA	154,315	159,369	58,473	0	NA
Carbon tetrachloride	95	364,083	50,065	738,973	473	7,735	0	1,161,329
	94	850,623	17,314	1,172,827	574	50,796	0	2,092,134
	93	111,626	4,109	920,808	1,675	121,363	0	1,159,581
	88	NA	NA	1,300,058	5,014	49,703	250	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽¹⁾
Continued.

CAS Number ⁽²⁾	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
463-58-1	Carbonyl sulfide	95	61	86,525	17,496,365	0	0	0	17,582,890
		94	54	77,490	17,010,637	0	0	0	17,088,127
		93	42	8,998	14,352,689	0	0	0	14,361,687
		88	38	7,643	25,946,460	0	0	0	25,954,103
120-80-9	Catechol	95	126	1,328	2,129	24,558	0	3,729	31,744
		94	119	1,483	1,878	26,585	0	1,332	31,278
		93	124	744	1,572	52,893	0	4,861	60,070
		88	113	2,448	1,341	320,546	0	84,332	408,667
133-90-4	Chloramben	95	No Reports Received						
		94	No Reports Received						
		93	No Reports Received						
		88	1	250	1,168	250	0	0	1,668
57-74-9	Chlordane	95	1	823	0	22	0	0	845
		94	1	1,300	0	13	0	0	1,313
		93	1	51	0	15	0	0	66
		88	2	2,695	3	4	4,262	0	6,964
7782-50-5	Chlorine	95	1,357	1,050,520	64,688,063	428,976	74,124	14,213	66,255,896
		94	1,451	1,297,288	58,578,478	502,396	74,311	63,097	60,515,570
		93	1,514	1,250,177	74,178,219	590,541	120,758	51,912	76,191,607
		88	1,800	4,723,832	128,363,569	6,622,187	107,624	430,047	140,247,259
10049-04-4	Chlorine dioxide	95	124	16,722	1,271,494	5	0	0	1,288,221
		94	125	16,909	1,484,132	0	0	0	1,501,041
		93	130	27,090	1,646,855	250	0	0	1,674,195
		88	122	1,277,556	10,973,494	2,350	0	41,000	12,294,400
79-11-8	Chloroacetic acid	95	30	5,558	717	11,121	0	0	17,396
		94	32	5,983	710	10,178	0	950	17,821
		93	29	5,796	767	8,719	0	750	16,032
		88	37	21,660	5,159	850	10	0	27,679
108-90-7	Chlorobenzene	95	60	553,142	525,711	1,850	27,405	5	1,108,113
		94	65	746,017	702,480	2,206	72,000	16	1,522,719
		93	70	1,037,054	1,022,083	3,511	71,000	678	2,134,326
		88	66	2,032,791	2,343,096	98,354	84,457	4,127	4,562,825
75-00-3	Chloroethane	95	53	1,221,405	1,536,944	2,320	0	116	2,760,785
		94	49	1,285,967	1,641,444	767	110	147	2,928,435
		93	54	1,219,603	1,583,496	2,231	110	38	2,805,478
		88	50	2,148,305	2,738,910	27,448	1,510	1	4,916,174
67-66-3	Chloroform	95	159	3,326,071	6,907,283	329,330	33,276	4,297	10,600,257
		94	167	3,485,479	7,483,557	375,212	80,002	11,779	11,436,029
		93	175	4,587,149	9,266,297	445,162	38,039	32,925	14,369,572
		88	169	7,790,990	18,197,619	1,124,965	36,000	69,247	27,218,821
74-87-3	Chloromethane	95	107	755,378	3,327,888	57,425	50,198	35	4,190,924
		94	109	951,731	3,716,002	59,653	50,707	15	4,778,108
		93	94	1,220,122	4,095,061	59,775	93,947	266	5,469,171
		88	81	3,515,698	8,051,949	115,985	165,250	0	11,848,882
107-30-2	Chloromethyl methyl ether	95	3	11	2,854	10	0	0	2,875
		94	3	11	2,728	5	0	0	2,744
		93	4	20	2,221	5	0	0	2,246
		88	4	33	3,000	0	0	0	3,033
—	Chlorophenols	95	9	1,960	3,037	30	105,687	0	110,714
		94	10	1,991	6,630	39	94,236	1	102,897
		93	6	1,964	7,942	34	106,436	0	116,376
		88	9	2,154	419	272	71,554	0	74,399



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ³⁶ Pounds	Transfers to Energy Recovery ³⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
Carbonyl sulfide	95	0	0	16,000	0	0	0	16,000
	94	0	0	18,000	0	0	0	18,000
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	0	0	NA
Catechol	95	0	94,900	961	92,901	563	0	189,325
	94	0	9,318	2,805	83,490	1,568	0	97,181
	93	0	33,825	6,151	64,198	841	0	105,015
	88	NA	NA	14,744	245,399	121,388	250	NA
Chloramben	95	No Reports Received						
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA	0	0	1,159	0	NA
Chlordane	95	0	0	0	95	0	0	95
	94	0	0	6	100	0	0	106
	93	0	0	11	51	0	0	62
	88	NA	NA	74,170	23	0	6,639	NA
Chlorine	95	1,878,189	1,196	302,518	444,894	40,771	0	2,667,568
	94	2,833,114	4,310	343,447	838,752	15,133	5,005	4,039,761
	93	1,413,177	10,514	318,097	966,132	15,866	0	2,723,786
	88	NA	NA	2,995,507	3,100,947	1,003,531	0	NA
Chlorine dioxide	95	0	0	0	250	0	0	250
	94	0	0	0	296	2	0	298
	93	0	0	0	880	0	0	880
	88	NA	NA	0	2,650	41,750	0	NA
Chloroacetic acid	95	0	0	2,654	500	600	0	3,754
	94	0	250	5,406	1,015	603	0	7,274
	93	0	400	1,026	1,433	793	0	3,652
	88	NA	NA	6,900	10,727	2,506	0	NA
Chlorobenzene	95	1,017,180	1,367,467	1,726,505	2,169	92,582	0	4,205,903
	94	1,084,976	625,394	1,120,085	1,922	94,629	0	2,927,006
	93	1,401,667	643,725	2,612,970	8,553	4,965	0	4,671,880
	88	NA	NA	4,925,431	578,774	117,624	0	NA
Chloroethane	95	156,726	46,034	490,733	760	0	0	694,253
	94	174,502	59,459	360,204	760	8	0	594,933
	93	161,718	23,483	397,091	260	0	0	582,552
	88	NA	NA	431,010	180	32,260	0	NA
Chloroform	95	175,944	103,428	1,644,237	418,401	6,636	0	2,348,646
	94	351,182	101,775	1,969,032	437,920	68,693	0	2,928,602
	93	435,332	69,463	1,817,227	603,550	73,353	0	2,998,925
	88	NA	NA	1,204,786	1,226,573	143,124	20,365	NA
Chloromethane	95	0	4,233	238,170	2,980	1,557	0	246,940
	94	0	7,239	358,585	2,242	1,565	0	369,631
	93	0	57,355	163,661	3,442	1,446	0	225,904
	88	NA	NA	45,292	54,223	59,140	0	NA
Chloromethyl methyl ether	95	0	0	0	0	70	0	70
	94	0	0	0	0	70	0	70
	93	0	0	0	0	70	0	70
	88	NA	NA	0	0	0	0	NA
Chlorophenols	95	0	6,380	25,112	1,350	940	0	33,782
	94	17,232	0	26,914	1,494	383	0	46,023
	93	0	0	36,088	279	751	0	37,118
	88	NA	NA	1,970,910	2,650	2	0	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),^(a)
Continued.

CAS Number ^(b)	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
126-99-8	Chloroprene	95	14	109,218	874,670	0	60,000	5,104	1,048,992
		94	14	125,385	968,771	2	59,600	3,997	1,157,755
		93	14	191,316	799,794	47	29,000	3,018	1,023,175
		88	13	234,228	1,713,780	287	68,792	0	2,017,087
1897-45-6	Chlorothalonil	95	25	4,710	2,730	35	0	750	8,225
		94	22	1,472	2,668	21	0	250	4,411
		93	21	1,295	4,920	9	0	250	6,474
		88	10	19,455	9,021	250	0	0	28,726
7440-47-3	Chromium	95	1,808	275,914	346,078	16,648	33	1,111,311	1,749,984
		94	1,816	473,736	164,925	20,491	48	1,168,687	1,827,887
		93	1,805	444,546	144,653	24,229	269	1,064,611	1,678,308
		88	1,241	369,210	195,579	75,192	2,249	9,280,857	9,923,087
—	Chromium compounds	95	1,397	170,687	405,305	135,967	57,747	20,541,510	21,311,216
		94	1,427	172,247	367,057	159,381	38,061	20,632,117	21,368,863
		93	1,442	119,364	280,507	229,762	42,493	22,655,280	23,327,406
		88	1,207	257,115	505,795	326,027	52,653	30,934,406	32,075,996
569-64-2	C.I. Basic Green 4	95	2	0	5	0	0	0	5
		94	1	0	10	0	0	0	10
		93	3	0	5	0	0	0	5
		88	6	500	250	0	0	0	750
989-38-8	C.I. Basic Red 1	95	2	0	0	0	0	0	0
		94	2	4	4	0	0	0	8
		93	2	0	0	0	0	0	0
		88	No Reports Received						
16071-86-6	C.I. Direct Brown 95	95	1	0	0	0	0	0	0
		94	No Reports Received						
		93	No Reports Received						
		88	No Reports Received						
2832-40-8	C.I. Disperse Yellow 3	95	3	450	0	27	0	0	477
		94	3	238	0	26	0	0	264
		93	2	399	0	28	0	9,199	9,626
		88	1	398	0	302	0	0	700
81-88-9	C.I. Food Red 15	95	2	0	0	0	0	0	0
		94	1	0	0	0	0	0	0
		93	2	0	1	0	0	0	1
		88	2	250	0	0	0	0	250
3118-97-6	C.I. Solvent Orange 7	95	No Reports Received						
		94	2	0	0	0	0	0	0
		93	1	0	0	0	0	0	0
		88	No Reports Received						
97-56-3	C.I. Solvent Yellow 3	95	1	0	0	0	0	0	0
		94	No Reports Received						
		93	1	0	0	0	0	0	0
		88	1	250	0	0	0	0	250
842-07-9	C.I. Solvent Yellow 14	95	No Reports Received						
		94	No Reports Received						
		93	No Reports Received						
		88	2	0	0	0	0	0	0
7440-48-4	Cobalt	95	241	13,623	20,872	17,295	0	48,334	100,124
		94	243	21,914	23,377	6,824	0	35,030	87,145
		93	250	18,556	15,621	7,293	0	19,988	61,458
		88	177	22,439	21,566	16,744	0	213,204	273,953



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ⁶³ Pounds	Transfers to Energy Recovery ⁶³ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁶⁷ Pounds	Total Transfers ⁶³ Pounds
Chloroprene	95	481,972	9,105	126,850	11,571	7,102	0	636,600
	94	1,155,305	96,000	50,800	16,571	6,391	0	1,325,067
	93	500,444	121,297	200,869	18,506	5,295	0	846,411
	88	NA	NA	18,749	62,000	0	0	NA
Chlorothalonil	95	0	2,564	141,072	1,264	97,420	0	242,320
	94	0	15	7,551	505	227,473	0	235,544
	93	625	0	3,632	281	206,386	0	210,924
	88	NA	NA	3,660	541	396,274	0	NA
Chromium	95	93,583,287	109,760	2,354,458	50,183	4,750,806	5	100,848,499
	94	109,047,114	26,284	493,442	73,116	4,935,627	88,015	114,663,598
	93	86,501,566	3,582	866,151	97,349	6,830,728	44,173	94,343,549
	88	NA	NA	1,218,879	414,986	10,426,361	812,578	NA
Chromium compounds	95	30,228,236	69,958	3,167,718	308,317	15,948,809	32,950	49,755,988
	94	37,623,010	68,696	4,875,271	356,513	11,154,365	0	54,077,855
	93	40,130,816	27,479	2,543,057	357,391	10,605,750	10,961	53,675,454
	88	NA	NA	2,660,432	1,678,116	11,501,254	386,281	NA
C.I. Basic Green 4	95	0	0	499	0	0	0	499
	94	0	0	499	0	0	0	499
	93	0	0	499	83	0	0	582
	88	NA	NA	0	1,320	250	0	NA
C.I. Basic Red 1	95	0	250	250	250	668	0	1,418
	94	0	114	132	274	668	0	1,188
	93	0	230	0	24	670	0	924
	88	No Reports Received						
C.I. Direct Brown 95	95	0	0	0	5	0	0	5
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA					NA
C.I. Disperse Yellow 3	95	0	0	0	5,194	1,061	0	6,255
	94	0	0	0	2,488	2,597	0	5,085
	93	0	0	0	3,150	1,658	0	4,808
	88	NA	NA	0	0	899	0	NA
C.I. Food Red 15	95	0	0	0	5	0	0	5
	94	0	0	0	0	0	0	0
	93	0	0	0	1,100	0	0	1,100
	88	NA	NA	0	0	0	0	NA
C.I. Solvent Orange 7	95	No Reports Received						
	94	0	0	0	284	350	0	634
	93	0	0	0	0	250	0	250
	88	NA	NA					NA
C.I. Solvent Yellow 3	95	0	0	0	0	0	0	0
	94	No Reports Received						
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	0	0	NA
C.I. Solvent Yellow 14	95	No Reports Received						
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA	0	0	0	0	NA
Cobalt	95	9,947,414	10	21,575	16,845	189,432	0	10,175,276
	94	9,131,830	5	848,470	21,602	154,960	0	10,156,867
	93	7,831,888	5	33,303	16,816	133,481	0	8,015,493
	88	NA	NA	27,673	8,843	226,686	27,823	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾
Continued.

CAS Number ⁽³⁾	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
—	Cobalt compounds	95	211	4,005	22,134	70,388	22,657	180,417	299,601
		94	219	10,473	22,040	106,474	1,750	133,602	274,339
		93	205	6,160	20,341	96,644	2,375	107,786	233,306
		88	150	11,081	45,329	63,662	18,500	38,960	177,532
7440-50-8	Copper	95	2,612	451,774	724,728	42,111	29,787	1,680,175	2,928,575
		94	2,586	404,440	787,088	55,728	19,944	992,102	2,259,302
		93	2,577	275,565	971,810	43,310	23,677	1,487,153	2,801,515
		88	1,954	320,283	1,204,354	115,631	15,651	10,466,175	12,122,094
—	Copper compounds	95	1,396	1,496,420	1,183,482	79,792	264,102	40,604,659	43,628,455
		94	1,424	3,239,830	2,132,322	85,711	214,308	41,648,170	47,320,341
		93	1,455	4,004,565	3,200,521	92,495	229,174	40,079,209	47,605,964
		88	1,036	2,335,930	820,767	185,287	165,957	29,683,357	33,191,298
120-71-8	p-Cresidine	95	5	1,706	2,900	0	0	0	4,606
		94	5	881	130	81	0	50	1,142
		93	5	285	125	5	0	85	500
		88	6	5,400	1,680	250	0	750	8,080
108-39-4	m-Cresol	95	29	28,042	19,958	1,675	680,000	0	729,675
		94	24	35,097	18,973	4,072	610,000	0	668,142
		93	20	30,178	5,958	626	520,000	0	556,762
		88	15	5,860	12,572	283	0	455	19,170
95-48-7	o-Cresol	95	23	4,077	8,348	82	590,000	0	602,507
		94	25	12,085	3,359	1,990	660,000	0	677,434
		93	22	13,201	153,999	158	560,000	122	727,480
		88	28	45,557	44,236	448	0	1,667	91,908
106-44-5	p-Cresol	95	30	27,664	18,707	1,066	342,000	0	389,437
		94	27	34,350	31,783	2,020	301,900	0	370,053
		93	21	21,473	3,831	293	262,000	24	287,621
		88	18	6,286	634,417	1,143	152,000	62,291	856,137
1319-77-3	Cresol (mixed isomers)	95	149	339,432	1,250,492	15,011	648,882	2,345	2,256,162
		94	156	359,693	1,433,993	11,607	808,900	4,828	2,619,021
		93	118	188,572	323,765	2,931	903,402	1,431	1,420,101
		88	110	400,427	378,678	6,764	1,804,060	4,512	2,594,441
98-82-8	Cumene	95	230	709,797	1,167,318	1,490	9,403	455	1,888,463
		94	236	831,927	1,210,212	6,363	8,940	942	2,058,384
		93	237	1,069,258	1,323,817	1,148	17,062	950	2,412,235
		88	117	2,156,139	2,910,301	3,201	30,165	8,591	5,108,397
80-15-9	Cumene hydroperoxide	95	43	51,904	21,079	73	280,000	3,400	356,456
		94	41	78,787	57,791	176	280,000	2,500	419,254
		93	39	74,360	21,794	196	380,000	4,271	480,621
		88	40	178,787	13,736	1,784	371,000	250	565,557
135-20-6	Cupferron	95	1	0	0	0	0	0	0
		94	2	2	9	0	0	0	11
		93	2	28	31	0	0	0	59
		88	4	140	780	0	0	0	920
—	Cyanide compounds	95	234	168,577	903,860	88,856	4,399,640	15,130	5,576,063
		94	249	125,440	901,321	102,633	3,239,418	13,955	4,382,767
		93	256	56,685	918,203	97,666	2,288,870	6,048	3,367,472
		88	393	525,618	721,774	195,244	3,707,326	107,208	5,257,170
110-82-7	Cyclohexane	95	361	3,510,382	4,547,194	19,107	238,200	10,605	8,325,488
		94	378	3,580,892	5,169,768	31,980	192,409	18,138	8,993,187
		93	345	4,913,732	5,523,777	26,919	266,045	13,018	10,743,491
		88	302	5,259,249	8,705,669	20,071	334,471	38,190	14,357,650



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ⁶⁶ Pounds	Transfers to Energy Recovery ⁶⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁶⁷ Pounds	Total Transfers ⁶⁸ Pounds
Cobalt compounds	95	1,356,029	1,854	83,177	8,058	263,074	0	1,712,192
	94	1,410,369	1,893	112,916	8,441	410,724	250	1,944,593
	93	2,034,531	517	74,904	22,785	498,888	0	2,631,625
	88	NA	NA	88,079	28,369	253,578	263	NA
Copper	95	506,210,894	45,426	1,155,297	193,848	13,661,904	51,641	521,319,010
	94	529,510,433	38,402	1,141,558	133,266	12,844,901	8,274	543,676,834
	93	485,770,972	48,571	841,999	146,627	12,455,418	9,473	499,273,060
	88	NA	NA	4,066,439	312,744	15,151,106	1,453,638	NA
Copper compounds	95	190,986,142	32,322	2,009,355	133,613	7,240,076	505	200,402,013
	94	149,576,801	64,628	2,148,788	147,674	9,990,389	199,764	162,128,044
	93	122,527,044	59,568	2,449,012	216,353	11,976,353	704,142	137,932,472
	88	NA	NA	5,931,794	437,155	9,318,462	1,523,862	NA
p-Cresidine	95	0	0	13,000	41,611	2,200	0	56,811
	94	0	0	2,200	28,896	3,000	0	34,096
	93	0	0	1,400	28,223	0	0	29,623
	88	NA	NA	0	37,750	4,700	0	NA
m-Cresol	95	1,503,813	17,854	81,671	7,837	3,218	0	1,614,393
	94	684,191	21,207	48,433	14,624	15,923	0	784,378
	93	270,000	9,373	51,380	9,654	15,386	0	355,793
	88	NA	NA	125,737	7,165	13,503	0	NA
o-Cresol	95	3,888	320	34,578	85,123	5,257	0	129,166
	94	4,178	11,520	27,062	99,457	8,335	0	150,552
	93	0	7,205	11,706	40,942	6,632	0	66,485
	88	NA	NA	75,565	40,703	12,458	2,500	NA
p-Cresol	95	900,001	42,381	61,524	931,786	3,168	0	1,938,860
	94	450,009	44,592	32,831	1,723,189	10,617	0	2,261,238
	93	160,000	79,736	23,124	868,509	8,086	0	1,139,455
	88	NA	NA	26,377	744,568	643	250	NA
Cresol (mixed isomers)	95	187,657	581,791	1,082,227	79,401	47,059	0	1,978,135
	94	337,998	577,126	257,735	62,226	71,546	0	1,306,631
	93	155,838	385,999	163,672	46,325	25,072	1,000	777,906
	88	NA	NA	847,303	358,242	483,488	8,738	NA
Cumene	95	57,755	1,380,389	146,372	26,657	70,457	0	1,681,630
	94	96,410	620,565	193,873	24,194	25,761	0	960,803
	93	90,372	879,000	83,245	69,289	12,089	0	1,133,995
	88	NA	NA	126,382	203,279	80,075	0	NA
Cumene hydroperoxide	95	0	6	4,062	17,343	68,728	0	90,139
	94	0	738	2,353	768	71,597	0	75,456
	93	0	706	4,316	592	15,687	0	21,301
	88	NA	NA	2,572	5,250	22,944	0	NA
Cupferron	95	0	0	5,648	0	0	0	5,648
	94	0	17,811	0	78	0	0	17,889
	93	0	0	2,300	56	0	0	2,356
	88	NA	NA	4,275	780	0	0	NA
Cyanide compounds	95	24,708	3,523	457,456	230,689	150,209	500	867,085
	94	27,718	8,094	418,313	164,431	143,429	9,104	771,089
	93	22,855	2,008	326,315	99,986	149,070	500	600,734
	88	NA	NA	1,964,387	1,162,387	581,430	150,909	NA
Cyclohexane	95	1,589,125	16,825,249	1,058,952	5,022	105,429	0	19,583,777
	94	1,532,896	2,689,551	2,416,379	17,888	25,364	0	6,682,078
	93	1,385,099	2,907,123	815,048	12,103	21,021	0	5,140,394
	88	NA	NA	2,691,889	146,667	211,575	37,400	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾
Continued.

CAS Number	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
94-75-7	2,4-D (acetic acid)	95	27	2,580	4,308	1,083	250	4,325	12,546
		94	29	5,797	3,772	133	250	300	10,252
		93	29	5,596	3,218	184	750	55	9,803
		88	28	3,289	3,731	549	3,789	38,000	49,358
1163-19-5	Decabromodiphenyl oxide	95	133	17,378	21,893	3,846	11	201,698	244,826
		94	131	16,151	153,971	1,958	40	298,191	470,311
		93	131	23,363	179,805	2,176	39	506,785	712,168
		88	58	7,500	22,104	500	292	21,450	51,846
615-05-4	2,4-Diaminoanisole	95	No Reports Received						
		94	No Reports Received						
		93	No Reports Received						
		88	1	0	0	0	0	0	0
39156-41-7	2,4-Diaminoanisole sulfate	95	No Reports Received						
		94	No Reports Received						
		93	No Reports Received						
		88	1	0	0	0	0	0	0
101-80-4	4,4'-Diaminodiphenyl ether	95	3	5	18	359	0	0	382
		94	5	14	102	1,653	0	12	1,781
		93	5	8	111	2,137	0	5	2,261
		88	5	0	216	585	0	0	801
95-80-7	2,4-Diaminotoluene	95	5	250	250	0	0	0	500
		94	4	250	1,767	0	0	0	2,017
		93	4	263	1,527	0	0	0	1,790
		88	2	2,900	88	250	0	0	3,238
25376-45-8	Diaminotoluene (mixed isomers)	95	11	4,372	5,222	5,522	7,050	55	22,221
		94	11	15,213	6,500	3,666	7,700	57	33,136
		93	12	12,501	4,863	989	28,000	113	46,466
		88	13	15,202	5,895	3,288	174,000	295	198,680
132-64-9	Dibenzofuran	95	36	12,034	6,420	2,843	0	220	21,517
		94	34	15,416	9,070	41	0	1,589	26,116
		93	45	16,309	14,144	10	0	910	31,373
		88	110	46,687	24,406	1,510	0	9,929	82,532
106-93-4	1,2-Dibromoethane	95	19	7,858	4,514	306	0	256	12,934
		94	16	11,417	3,995	2,788	12	325	18,537
		93	19	17,439	7,760	80	26	254	25,559
		88	34	34,119	29,223	1,011	6,882	259	71,494
84-74-2	Dibutyl phthalate	95	122	24,979	99,243	3,981	390,000	1,402	519,605
		94	127	27,787	65,298	2,327	280,000	750	376,162
		93	131	108,863	81,556	3,593	140,000	1,000	335,012
		88	126	169,836	34,222	14,339	350,000	6,395	574,792
95-50-1	1,2-Dichlorobenzene	95	27	151,821	119,701	3,789	26,000	11,521	312,832
		94	34	98,285	147,364	2,812	2,900	24,287	275,648
		93	31	168,572	176,072	2,174	14,000	6,947	367,765
		88	45	206,072	324,463	11,624	20,000	13,354	575,513
541-73-1	1,3-Dichlorobenzene	95	7	2,975	4,553	526	0	0	8,054
		94	8	1,565	8,207	547	0	0	10,319
		93	7	1,339	8,682	139	0	0	10,160
		88	6	5,782	9,500	1,281	0	0	16,563
106-46-7	1,4-Dichlorobenzene	95	24	117,473	126,323	1,287	0	3,100	248,183
		94	24	114,935	142,276	1,595	2,000	1,100	261,906
		93	22	95,363	262,528	1,265	2,000	1,112	362,268
		88	24	103,870	1,787,549	6,153	4,000	1,300	1,902,872



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ³⁶ Pounds	Transfers to Energy Recovery ³⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
2,4-D (acetic acid)	95	0	0	31,590	20	17,430	0	49,040
	94	0	0	45,410	38	96,785	0	142,233
	93	0	0	51,521	574	18,728	0	70,823
	88	NA	NA	23,335	27,952	68,422	0	NA
Decabromodiphenyl oxide	95	562,662	18,826	64,923	249,108	682,911	0	1,578,430
	94	169,003	30,860	64,923	396,137	986,881	0	1,647,804
	93	35,105	8,129	73,725	203,871	856,070	0	1,176,900
	88	NA	NA	76,150	19,090	555,181	1,284	NA
2,4-Diaminoanisole	95	No Reports Received						
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA	0	250	0	0	NA
2,4-Diaminoanisole sulfate	95	No Reports Received						
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA	0	250	0	0	NA
4,4'-Diaminodiphenyl ether	95	0	0	380,169	5	120	0	380,294
	94	0	0	9,574	10	122	0	9,706
	93	0	0	23,548	7	119	0	23,674
	88	NA	NA	0	179	142	0	NA
2,4-Diaminotoluene	95	0	0	29,774	0	0	0	29,774
	94	0	480	64,350	0	0	0	64,830
	93	0	0	57,902	0	0	0	57,902
	88	NA	NA	0	1,200	0	0	NA
Diaminotoluene (mixed isomers)	95	0	386,996	1,925,458	8,720	28,625	0	2,349,799
	94	321	354,950	507,953	160,640	9,719	0	1,033,583
	93	0	376,100	479,489	58,575	1,646	0	915,810
	88	NA	NA	456,114	2,951	289,591	250	NA
Dibenzofuran	95	27,735	270	42	503	19,824	0	48,374
	94	26,485	0	135	508	26,616	0	53,744
	93	3,609	19,988	1,272	505	30,141	0	55,515
	88	NA	NA	51,985	47,726	181,799	250	NA
1,2-Dibromoethane	95	0	18	72,467	5	3	0	72,493
	94	116	2	73,737	0	251	0	74,106
	93	1	255	502,946	0	67	0	503,269
	88	NA	NA	5,937	253	27,924	0	NA
Dibutyl phthalate	95	26,704	173,060	104,738	5,289	25,351	0	335,142
	94	23,901	237,232	159,616	3,978	68,507	0	493,234
	93	12,896	200,186	117,592	8,948	74,189	0	413,811
	88	NA	NA	157,156	36,523	113,068	1,618	NA
1,2-Dichlorobenzene	95	3,626,506	767,516	2,658,651	6,481	28,228	0	7,087,382
	94	2,518,203	777,347	2,153,033	20,607	38,095	0	5,507,285
	93	3,145,376	404,460	1,538,389	30,791	99,113	0	5,218,129
	88	NA	NA	1,947,856	64,118	38,266	53,683	NA
1,3-Dichlorobenzene	95	1,130	0	3,102	1,401	0	0	5,633
	94	7,632	0	1,858	0	0	0	9,490
	93	6,764	450	5,048	1,537	0	0	13,799
	88	NA	NA	250	40	290	0	NA
1,4-Dichlorobenzene	95	35,020	7,081	624,348	5	3,328	0	669,782
	94	7,531	2,730	272,784	3,303	0	0	286,348
	93	6,278	0	102,521	3,631	213	0	112,643
	88	NA	NA	138,132	37,997	750	0	NA



Chapter 5 — Year-to-Year Comparison of TRI Data

Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽¹⁾
Continued.

CAS Number ⁽²⁾	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
25321-22-6	Dichlorobenzene (mixed isomers)	95	9	210	5,233	0	0	0	5,443
		94	7	316	3,726	0	0	0	4,042
		93	8	475	6,411	0	1	30	6,917
		88	15	20,169	143,515	40	0	0	163,724
91-94-1	3,3'-Dichlorobenzidine	95	3	5	6	0	0	0	11
		94	5	5	5	0	0	0	10
		93	5	5	5	0	0	0	10
		88	14	250	5	752	0	0	1,007
75-27-4	Dichlorobromomethane	95	1	0	2,300	0	0	50	2,350
		94	1	0	0	0	0	0	0
		93	1	180	0	0	0	0	180
		88	1	13,440	0	0	0	0	13,440
107-06-2	1,2-Dichloroethane	95	81	593,163	640,757	5,194	24,339	256	1,263,709
		94	81	667,791	1,204,381	7,501	34,296	15	1,913,984
		93	77	618,374	1,698,763	9,871	5,198	303	2,332,509
		88	110	1,574,325	3,040,854	40,527	1,452,084	2,166	6,109,956
540-59-0	1,2-Dichloroethylene	95	10	3,907	4,620	270	0	0	8,797
		94	10	7,796	7,813	23	0	0	15,632
		93	13	19,923	11,447	28	0	0	31,398
		88	10	16,552	109,926	95	0	1	126,574
75-09-2	Dichloromethane	95	963	22,188,420	33,930,771	28,370	1,140,335	2,064	57,289,960
		94	1,050	25,172,356	37,932,893	52,289	960,942	62,345	64,180,825
		93	1,086	24,261,737	40,757,663	62,909	956,098	78,267	66,116,674
		88	1,674	49,639,287	79,472,242	349,960	1,478,833	157,156	131,097,478
120-83-2	2,4-Dichlorophenol	95	3	3,173	407	245	15,900	0	19,725
		94	5	3,045	794	61	10,860	0	14,760
		93	3	270	318	61	7,677	0	8,326
		88	8	535	868	107	17,700	2	19,212
78-87-5	1,2-Dichloropropane	95	11	235,605	380,865	4,344	0	20	620,834
		94	13	303,857	405,690	3,609	215	12	713,383
		93	12	262,040	315,399	4,749	0	19	582,207
		88	12	315,478	1,079,826	23,785	0	3,400	1,422,489
542-75-6	1,3-Dichloropropylene	95	11	20,801	10,466	193	0	0	31,460
		94	11	21,509	3,161	86	0	0	24,756
		93	10	27,698	5,650	2	0	0	33,350
		88	8	39,790	14,800	250	0	0	54,840
62-73-7	Dichlorvos	95	4	5	250	5	0	0	260
		94	5	768	513	5	0	0	1,286
		93	5	807	500	5	0	250	1,562
		88	7	1,050	0	0	0	0	1,050
115-32-2	Dicofol	95	4	500	250	0	0	0	750
		94	3	255	0	0	0	0	255
		93	5	255	10	5	0	250	520
		88	8	593	750	0	0	0	1,343
111-42-2	Diethanolamine	95	340	272,161	92,443	384,214	14,902	40,399	804,119
		94	362	190,258	140,176	221,037	81,164	169,713	802,348
		93	370	201,335	114,136	283,121	60,284	67,023	725,899
		88	332	443,507	198,081	438,213	238,317	133,456	1,451,574
117-81-7	Di-(2-ethylhexyl) phthalate	95	292	194,958	334,570	867	0	126,159	656,554
		94	312	129,611	331,958	957	0	101,906	564,432
		93	339	149,998	431,057	1,118	0	92,892	675,065
		88	303	181,545	1,035,768	2,776	3,091	20,748	1,243,928



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ⁶⁶ Pounds	Transfers to Energy Recovery ⁶⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁶⁷ Pounds	Total Transfers ⁶⁸ Pounds
Dichlorobenzene (mixed isomers)	95	0	5,175	3,684	0	9	0	8,868
	94	0	2,566	211	0	9	0	2,786
	93	0	14,828	14,540	0	0	0	29,368
	88	NA	NA	104,706	182,663	19,672	0	NA
3,3'-Dichlorobenzidine	95	0	22,000	1,600	250	2,400	0	26,250
	94	0	12,000	14,500	260	1,255	0	28,015
	93	0	3,300	11,250	10	5,005	0	19,565
	88	NA	NA	14,420	617	209,785	0	NA
Dichlorobromomethane	95	0	0	0	0	0	0	0
	94	0	0	0	0	0	0	0
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	0	0	NA
1,2-Dichloroethane	95	15,120,315	592,939	1,953,311	12,846	23,671	0	17,703,082
	94	15,625,934	636,747	1,180,057	11,853	75,642	0	17,530,233
	93	8,858,152	271,519	2,255,692	20,407	61,675	0	11,467,445
	88	NA	NA	1,617,555	1,477,242	166,131	228,000	NA
1,2-Dichloroethylene	95	6,200	0	2,234	0	0	0	8,434
	94	2,400	26,100	28	0	6	0	28,534
	93	2,101	6,470	522	0	0	0	9,093
	88	NA	NA	125,744	0	87,614	0	NA
Dichloromethane	95	14,302,050	3,287,580	10,884,145	799,574	179,467	2,140	29,454,956
	94	20,830,077	3,766,871	11,509,609	824,942	317,981	6,817	37,256,297
	93	21,059,381	3,277,977	9,781,644	825,299	147,479	584	35,092,364
	88	NA	NA	11,198,082	1,831,154	10,154,983	1,089,604	NA
2,4-Dichlorophenol	95	0	0	0	0	0	0	0
	94	0	0	0	0	1,815	0	1,815
	93	0	0	0	0	250	0	250
	88	NA	NA	12,559	6	350	0	NA
1,2-Dichloropropane	95	0	0	3,591	4,116	1,364	0	9,071
	94	0	1	2,037	253	699	0	2,990
	93	11,000	7	110,468	252	567	0	122,294
	88	NA	NA	3,782	136,775	1,131	0	NA
1,3-Dichloropropylene	95	470	123	2,476	0	0	0	3,069
	94	5,007	1,703	11,934	0	0	0	18,644
	93	5,432	1	2,257	0	0	0	7,690
	88	NA	NA	2,738	0	0	0	NA
Dichlorvos	95	0	250	1,000	0	250	0	1,500
	94	0	250	755	0	7,037	0	8,042
	93	0	250	3,660	0	750	0	4,660
	88	NA	NA	1,011	0	505	0	NA
Dicofol	95	0	0	250	0	250	0	500
	94	0	0	250	0	0	0	250
	93	0	0	2,271	0	250	0	2,521
	88	NA	NA	9,380	0	15,786	0	NA
Diethanolamine	95	66,220	733,052	170,817	1,843,838	458,057	0	3,271,984
	94	268,541	432,845	295,008	1,503,182	349,362	0	2,848,938
	93	364,972	3,542,381	565,007	2,247,221	104,498	0	6,824,079
	88	NA	NA	733,874	2,002,497	372,707	221,811	NA
Di-(2-ethylhexyl) phthalate	95	5,994,834	263,015	265,470	21,170	2,972,243	0	9,516,732
	94	5,838,636	284,164	214,044	29,857	1,982,621	0	8,349,322
	93	5,435,745	232,912	442,200	26,914	2,888,973	0	9,026,744
	88	NA	NA	825,367	169,896	3,629,163	117,050	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾
Continued.

CAS Number	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
64-67-5	Diethyl sulfate	95	30	6,846	132	0	0	0	6,978
		94	33	6,305	622	10	0	5	6,942
		93	35	5,159	16,857	5	0	5	22,026
		88	24	8,436	2,191	0	0	250	10,877
119-90-4	3,3'-Dimethoxybenzidine	95	3	0	0	0	0	0	0
		94	3	3	0	5	0	0	8
		93	2	0	0	4	0	0	4
		88	No Reports Received						
121-69-7	N,N-Dimethylaniline	95	21	7,200	27,212	388	0	0	34,800
		94	21	5,441	16,651	584	0	0	22,676
		93	23	3,500	17,222	697	0	0	21,419
		88	20	18,448	80,457	19,967	0	250	119,122
57-14-7	1,1-Dimethyl hydrazine	95	4	781	38	0	0	0	819
		94	3	721	26	0	0	0	747
		93	4	99	95	0	0	0	194
		88	4	2,206	2,117	10	0	0	4,333
105-67-9	2,4-Dimethylphenol	95	18	15,446	37,101	33	79,000	5	131,585
		94	21	17,252	40,496	704	64,000	250	122,702
		93	18	16,323	14,990	84	55,000	250	86,647
		88	13	1,661	9,927	484	24,703	399	37,174
131-11-3	Dimethyl phthalate	95	83	116,213	222,873	275	1,000	5	340,366
		94	75	67,703	199,555	266	1,200	5	268,729
		93	69	21,010	71,529	329	1,300	5	94,173
		88	57	113,841	421,215	4,335	390	504	540,285
77-78-1	Dimethyl sulfate	95	39	5,154	1,278	1	0	0	6,433
		94	38	5,356	1,421	300	0	0	7,077
		93	37	4,561	1,204	0	0	5	5,770
		88	33	9,176	1,630	610	0	50	11,466
534-52-1	4,6-Dinitro-o-cresol	95	5	20	125	0	4,649	0	4,794
		94	6	6	84	5	0	0	95
		93	6	6	65	10	0	0	81
		88	10	259	15	266	0	2	542
51-28-5	2,4-Dinitrophenol	95	4	111	1	2,000	0	0	2,112
		94	6	121	2	2,312	36,900	9	39,344
		93	5	1	2	142	27,408	4	27,557
		88	11	12,386	8,439	98,692	86,200	257	205,974
121-14-2	2,4-Dinitrotoluene	95	4	1,871	3	231	0	0	2,105
		94	2	1,848	51	399	0	0	2,298
		93	4	1,846	33	319	0	0	2,198
		88	13	15,533	77,724	12,055	106,400	14,961	226,673
606-20-2	2,6-Dinitrotoluene	95	1	468	1	126	0	0	595
		94	1	503	13	374	0	0	890
		93	1	463	8	212	0	0	683
		88	7	6,074	81,523	957	27,000	0	115,554
123-91-1	1,4-Dioxane	95	52	114,767	108,098	216,689	0	5,736	445,290
		94	56	121,159	109,760	305,771	0	2,266	538,956
		93	65	421,047	159,389	652,296	0	2,236	1,234,968
		88	73	361,259	251,374	203,320	0	11,702	827,655
106-89-8	Epichlorohydrin	95	68	200,269	110,980	26,937	0	18,874	357,060
		94	68	263,624	116,923	3,486	0	754	384,787
		93	71	282,451	101,680	3,642	0	2,356	390,129
		88	78	506,142	200,965	4,917	68,750	2,524	783,298



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ⁶⁶ Pounds	Transfers to Energy Recovery ⁶⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁶⁷ Pounds	Total Transfers ⁶⁸ Pounds
Diethyl sulfate	95	6,420,000	415	1,655	3,480	250	0	6,425,800
	94	6,180,000	76	1,892	4,565	0	0	6,186,533
	93	5,370,550	54	1,775	457	0	0	5,372,836
	88	NA	NA	0	890	0	0	NA
3,3'-Dimethoxybenzidine	95	0	0	0	0	0	0	0
	94	0	0	0	33	0	0	33
	93	0	0	0	0	0	0	0
	88	NA	NA					NA
N,N-Dimethylaniline	95	0	745,704	83,476	121,258	435	0	950,873
	94	0	640,609	73,839	145,372	0	0	859,820
	93	0	593,413	37,849	164,986	0	0	796,248
	88	NA	NA	465,397	287,483	772	0	NA
1,1-Dimethyl hydrazine	95	57	0	10	0	5	0	72
	94	46	0	3,308	0	5	0	3,359
	93	5	0	2,914	0	6	0	2,925
	88	NA	NA	0	0	8,855	0	NA
2,4-Dimethylphenol	95	30,368	50,737	67,100	6,412	17	0	154,634
	94	46,074	43,599	28,001	6,161	1,448	0	125,283
	93	22,356	27,443	16,314	5,700	885	0	72,698
	88	NA	NA	1,250	7,964	1,500	0	NA
Dimethyl phthalate	95	800	70,353	52,335	168,561	2,524	0	294,573
	94	5,276	87,747	14,290	95,851	3,802	0	206,966
	93	250	28,987	25,816	131,086	4,597	0	190,736
	88	NA	NA	44,454	508,821	93,358	0	NA
Dimethyl sulfate	95	171,230	0	3	0	0	0	171,233
	94	35,803	0	0	10	0	0	35,813
	93	39,542	0	0	265	0	0	39,807
	88	NA	NA	0	1,000	0	0	NA
4,6-Dinitro-o-cresol	95	0	410	12,600	2,127	7,220	0	22,357
	94	0	74	10,186	640	5,953	0	16,853
	93	0	1,376	6,122	357	6,630	0	14,485
	88	NA	NA	259,448	19	46,648	0	NA
2,4-Dinitrophenol	95	0	9	219	0	0	0	228
	94	0	0	12,375	0	70	0	12,445
	93	0	0	9,000	0	20	0	9,020
	88	NA	NA	567,365	1,000	110,285	0	NA
2,4-Dinitrotoluene	95	0	9	1,381	0	94	0	1,484
	94	0	1,187	0	0	255	0	1,442
	93	0	300	0	0	10	0	310
	88	NA	NA	2,055	700,000	124,281	0	NA
2,6-Dinitrotoluene	95	0	1	118	0	0	0	119
	94	0	156	0	0	0	0	156
	93	0	0	0	0	0	0	0
	88	NA	NA	703	170,000	30,882	0	NA
1,4-Dioxane	95	13,524	1,196,939	87,738	211,057	352,996	0	1,862,254
	94	23,697	619,260	75,289	311,650	16,115	0	1,046,011
	93	20,107	738,584	200,994	258,084	61,762	0	1,279,531
	88	NA	NA	199,402	203,103	10,954	925	NA
Epichlorohydrin	95	120	170,813	994,600	11,300	893	0	1,177,726
	94	0	183,888	880,789	38,615	183	0	1,103,475
	93	0	17,837	947,707	29,201	851	0	995,596
	88	NA	NA	690,257	73,385	307	0	NA



Chapter 5 — Year-to-Year Comparison of TRI Data

Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽¹⁾
Continued.

CAS Number ⁽²⁾	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
110-80-5	2-Ethoxyethanol	95	38	83,927	128,442	891	0	0	213,260
		94	41	78,048	149,613	104	0	2	227,767
		93	49	109,436	208,789	1,952	0	0	320,177
		88	110	281,053	2,150,257	120,164	0	52	2,551,526
140-88-5	Ethyl acrylate	95	106	98,573	254,678	547	0	523	354,321
		94	108	92,394	104,838	253	0	18	197,503
		93	103	92,551	108,478	1,200	2,400	21	204,650
		88	105	126,521	119,461	1,211	0	265	247,458
100-41-4	Ethylbenzene	95	1,008	2,684,845	7,468,949	9,347	475,234	19,146	10,657,521
		94	980	3,245,698	8,779,646	10,950	633,869	54,259	12,724,422
		93	950	3,117,357	7,361,368	15,404	333,957	28,710	10,856,796
		88	564	3,168,121	4,546,589	15,970	72,914	202,112	8,005,706
541-41-3	Ethyl chloroformate	95	3	1,650	370	5	0	5	2,030
		94	5	3,106	435	5	0	5	3,551
		93	5	1,918	485	5	0	5	2,413
		88	5	11,880	2,023	0	0	0	13,903
74-85-1	Ethylene	95	283	14,291,229	19,827,406	27,324	0	0	34,145,959
		94	279	14,978,057	19,688,039	27,438	0	0	34,693,534
		93	279	15,031,441	19,378,633	24,779	0	0	34,434,853
		88	273	22,744,845	27,522,743	15,214	17,203	13,250	50,313,255
107-21-1	Ethylene glycol	95	1,285	3,571,825	3,396,765	806,344	12,554,675	850,294	21,179,903
		94	1,340	5,321,533	4,379,734	831,925	4,958,550	1,069,218	16,560,960
		93	1,350	2,474,022	7,815,279	1,188,650	5,943,528	1,265,746	18,687,225
		88	1,454	4,094,037	9,124,302	3,747,561	7,927,570	736,344	25,629,814
151-56-4	Ethyleneimine	95	1	0	3	0	0	0	3
		94	1	0	0	0	0	0	0
		93	1	0	0	0	0	0	0
		88	1	250	250	0	0	0	500
75-21-8	Ethylene oxide	95	157	430,888	408,341	5,225	130,000	2,208	976,662
		94	156	401,023	323,300	2,088	8,100	785	735,296
		93	163	479,414	589,308	2,634	28,000	11,222	1,110,578
		88	202	923,731	3,708,003	44,851	11,125	54,700	4,742,410
96-45-7	Ethylene thiourea	95	10	5	520	0	0	0	525
		94	10	5	524	0	0	0	529
		93	7	5	265	0	0	0	270
		88	6	0	500	0	0	0	500
2164-17-2	Fluometuron	95	6	275	521	0	0	0	796
		94	7	290	542	0	0	0	832
		93	7	296	347	0	0	0	643
		88	2	250	250	0	0	0	500
50-00-0	Formaldehyde	95	790	1,796,338	9,906,100	277,099	7,313,034	133,825	19,426,396
		94	785	1,968,089	9,930,973	388,750	7,739,510	149,116	20,176,438
		93	791	2,179,999	9,546,691	418,498	6,312,425	418,220	18,875,833
		88	821	3,104,302	9,155,886	904,546	9,608,524	494,111	23,267,369
76-13-1	Freon 113	95	137	1,667,156	931,484	3,829	6	0	2,602,475
		94	243	3,612,547	1,738,146	1,504	0	0	5,352,197
		93	468	6,914,660	2,950,969	4,271	4	1,237	9,871,141
		88	1,439	47,007,022	23,407,650	32,894	5,965	27,799	70,481,330
—	Glycol ethers	95	2,088	9,158,796	34,386,882	176,051	132,064	25,145	43,878,938
		94	2,191	10,510,093	38,485,923	304,425	128,096	50,880	49,479,417
		93	2,226	10,194,176	36,078,982	364,234	114,415	76,457	46,828,264
		88	1,610	10,494,043	38,252,824	279,021	362,198	105,185	49,493,271



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ³⁵ Pounds	Transfers to Energy Recovery ³⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
2-Ethoxyethanol	95	1,715	172,008	44,382	389,516	12,595	0	620,216
	94	304,696	310,524	34,335	355,198	0	0	1,004,753
	93	359,015	267,599	35,069	391,233	3	0	1,052,919
	88	NA	NA	366,979	196,286	71,142	250	NA
Ethyl acrylate	95	32,449	1,392,322	65,529	29,764	9,907	0	1,529,971
	94	46,359	1,613,608	50,711	26,959	20,056	0	1,757,693
	93	38,620	1,417,133	244,897	21,310	9,493	0	1,731,453
	88	NA	NA	101,345	27,656	7,110	250	NA
Ethylbenzene	95	5,046,076	11,521,301	1,701,825	65,126	170,100	1	18,504,429
	94	5,021,626	9,073,500	1,940,383	60,603	304,318	0	16,400,430
	93	3,945,107	9,314,932	1,344,212	57,024	133,894	250	14,795,419
	88	NA	NA	2,358,965	511,285	421,334	269,164	NA
Ethyl chloroformate	95	0	0	0	0	0	0	0
	94	0	10	761	0	0	0	771
	93	0	0	0	0	0	0	0
	88	NA	NA	69,600	0	0	0	NA
Ethylene	95	3	10,615,177	2,116,256	267	1,771	0	12,733,474
	94	0	9,961,635	25,854	563	17	0	9,988,069
	93	0	11,708,800	61,073	19	128	0	11,770,020
	88	NA	NA	29,887	250	11,432	0	NA
Ethylene glycol	95	128,053,077	13,206,385	16,086,467	19,229,438	1,445,323	0	178,020,690
	94	120,369,340	7,687,505	16,052,142	16,863,566	1,660,180	0	162,632,733
	93	111,754,382	8,774,329	12,396,166	15,142,911	1,407,924	0	149,475,712
	88	NA	NA	14,505,355	17,420,231	2,595,526	465,625	NA
Ethyleneimine	95	0	0	0	0	0	0	0
	94	0	0	0	0	0	0	0
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	0	0	NA
Ethylene oxide	95	5,205	0	786	57,079	8,663	0	71,733
	94	6,177	1	6,630	103,723	5,421	0	121,952
	93	0	1	1,063	95,140	3,589	0	99,793
	88	NA	NA	1,250	362,521	20,663	0	NA
Ethylene thiourea	95	840	0	6,280	5	16,165	0	23,290
	94	780	0	8,240	5	2,819	0	11,844
	93	2,054	0	5,585	5	1,260	0	8,904
	88	NA	NA	250	500	2,250	0	NA
Fluometuron	95	0	5	27,300	225	2,355	0	29,885
	94	0	0	2,009	255	2,335	0	4,599
	93	0	0	3,460	30,030	9,364	0	42,854
	88	NA	NA	19,100	2,300	3,700	0	NA
Formaldehyde	95	57,001	436,142	685,023	2,338,820	239,211	2	3,756,199
	94	49,281	283,343	710,864	2,703,261	266,426	0	4,013,175
	93	60,093	146,580	1,092,275	3,594,354	367,264	0	5,260,566
	88	NA	NA	1,326,663	4,382,254	1,409,999	3,580	NA
Freon 113	95	890,932	101,293	512,735	31,220	2,560	0	1,538,740
	94	1,953,208	163,558	963,867	39,023	20,434	0	3,140,090
	93	3,070,364	210,179	417,205	37,045	12,278	750	3,747,821
	88	NA	NA	4,037,767	104,441	1,925,997	300,965	NA
Glycol ethers	95	3,562,125	13,901,661	2,806,450	10,226,422	765,025	510	31,262,193
	94	4,281,345	14,286,669	4,304,400	11,114,605	703,587	14,982	34,705,588
	93	4,153,202	14,981,142	3,551,995	12,110,537	821,662	29,295	35,647,833
	88	NA	NA	5,800,264	8,981,781	1,478,290	539,894	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽¹⁾
Continued.

CAS Number ⁽³⁾	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
76-44-8	Heptachlor	95	1	203	0	6	0	0	209
		94	1	830	0	3	0	0	833
		93	1	31	0	2	0	0	33
		88	2	54,292	3	2	0	0	54,297
118-74-1	Hexachlorobenzene	95	9	477	89	6,458	480	0	7,504
		94	10	346	112	269	204	0	931
		93	10	304	332	476	548	0	1,660
		88	9	3,602	443	4	410	0	4,459
87-68-3	Hexachloro-1,3-butadiene	95	7	2,287	1,023	661	434	0	4,405
		94	7	1,189	221	351	201	0	1,962
		93	8	1,190	557	1,200	520	0	3,467
		88	9	2,043	465	153	220	0	2,881
77-47-4	Hexachlorocyclopentadiene	95	4	8,196	115	6	250	0	8,567
		94	4	7,675	1,248	1	250	0	9,174
		93	4	2,857	908	1	250	0	4,016
		88	5	77,902	415	6	2,131	0	80,454
67-72-1	Hexachloroethane	95	21	3,097	11,454	3,330	1,378	0	19,259
		94	19	4,736	1,265	447	326	0	6,774
		93	24	1,030	12,682	291	1,081	0	15,084
		88	22	2,949	16,128	11	520	1	19,609
302-01-2	Hydrazine	95	45	9,931	3,593	3	0	5	13,532
		94	47	11,544	4,847	292	250	29	16,962
		93	46	12,267	4,185	784	0	5	17,241
		88	55	27,510	7,689	2,149	0	29	37,377
10034-93-2	Hydrazine sulfate	95	3	0	0	0	200,000	0	200,000
		94	3	0	2	0	230,000	0	230,002
		93	3	0	1	0	220,000	0	220,001
		88	4	290	882	0	355,000	0	356,172
74-90-8	Hydrogen cyanide	95	51	106,824	2,374,342	763	683,154	3	3,165,086
		94	46	73,817	2,208,160	712	860,568	6	3,143,263
		93	42	53,128	2,180,973	396	821,815	12	3,056,324
		88	35	131,604	977,673	2,300	1,737,850	1,761	2,851,188
7664-39-3	Hydrogen fluoride	95	541	3,040,499	7,463,795	8,697	3,845	23,768	10,540,604
		94	528	2,668,226	5,520,268	14,984	2,174	33,443	8,239,095
		93	517	3,006,816	5,804,980	10,340	3,520	33,260	8,858,916
		88	530	3,725,362	10,677,646	189,928	250	13,002	14,606,188
123-31-9	Hydroquinone	95	63	14,351	2,999	5,093	340,005	43	362,491
		94	60	16,200	28,861	4,457	456,762	42	506,322
		93	60	3,950	16,125	8,994	470,000	117	499,186
		88	61	3,601	6,733	7,211	375,400	530	393,475
78-84-2	Isobutyraldehyde	95	24	111,667	144,612	752	44,075	47	301,153
		94	20	167,790	207,317	472	72,553	0	448,132
		93	20	131,296	255,098	650	34,783	0	421,827
		88	15	178,740	507,178	773	60	1	686,752
67-63-0	Isopropyl alcohol (manufacturing)	95	78	359,073	611,142	0	0	0	970,215
		94	88	288,363	708,541	0	0	250	997,154
		93	117	331,981	926,521	0	0	750	1,259,252
		88	91	790,482	1,210,915	1,900	0	14	2,003,311
80-05-7	4,4'-Isopropylidenediphenol	95	111	119,841	35,519	5,809	82,000	330,697	573,866
		94	116	136,821	100,086	18,260	99,184	394,032	748,383
		93	112	105,701	94,794	8,366	44,339	695,809	949,009
		88	79	119,870	107,056	126,385	0	424,117	777,428



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ³⁶ Pounds	Transfers to Energy Recovery ³⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
Heptachlor	95	0	0	822	29	0	0	851
	94	0	0	4,300	77	0	0	4,377
	93	0	0	77,287	42	0	0	77,329
	88	NA	NA	51,935	37	0	0	NA
Hexachlorobenzene	95	1	0	433,736	1	6,975	0	440,713
	94	1	0	65,263	250	940,478	0	1,005,992
	93	1	0	88,709	250	648,010	0	736,970
	88	NA	NA	521,558	160	443,541	0	NA
Hexachloro-1,3-butadiene	95	13	0	163,218	2	252	0	163,485
	94	0	0	60,084	6	430	0	60,520
	93	0	0	21,416	14	12	0	21,442
	88	NA	NA	3,513,001	300	19,640	0	NA
Hexachlorocyclopentadiene	95	0	0	24,199	709	2,600	0	27,508
	94	0	1,250	27,672	1,303	0	0	30,225
	93	0	910	9,620	656	0	0	11,186
	88	NA	NA	590,845	852	28,470	0	NA
Hexachloroethane	95	0	75,132	107,678	0	1,208	0	184,018
	94	0	61,000	18,745	0	352,309	0	432,054
	93	0	41,000	49,801	0	1,954	0	92,755
	88	NA	NA	532,352	260	128,504	0	NA
Hydrazine	95	57	0	2,551	6,378	23,504	0	32,490
	94	46	0	4,960	4,960	4,600	0	14,566
	93	8	30,005	72,162	1,408	4,136	0	107,719
	88	NA	NA	36,582	1,218	24,522	0	NA
Hydrazine sulfate	95	0	0	0	1,900	0	0	1,900
	94	0	0	0	2,300	0	0	2,300
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	0	0	NA
Hydrogen cyanide	95	0	250	179	10,124	326	0	10,879
	94	0	250	770	7,033	802	0	8,855
	93	0	253	492	281	2,065	0	3,091
	88	NA	NA	21,200	337	1,001	250	NA
Hydrogen fluoride	95	183,734	9,426	2,432,398	384,084	1,012,638	0	4,022,280
	94	212,513	0	2,520,074	349,379	761,422	0	3,843,388
	93	281,413	0	2,254,508	269,976	856,706	250	3,662,853
	88	NA	NA	2,795,628	508,939	3,467,471	64,252	NA
Hydroquinone	95	0	37,786	41,092	59,568	4,406	0	142,852
	94	0	3,900	29,043	150,987	3,396	0	187,326
	93	9,700	881	47,558	110,898	34,105	0	203,142
	88	NA	NA	303,106	512,180	6,835	0	NA
Isobutyraldehyde	95	10,927	567,584	96,600	0	0	0	675,111
	94	1,696	626,772	53,037	45,433	69,306	0	796,244
	93	200	703,266	44,236	10,402	0	0	758,104
	88	NA	NA	30,260	713	0	0	NA
Isopropyl alcohol (manufacturing)	95	45,561	267,277	228,973	3,226	2,577	0	547,614
	94	39,579	313,270	34,654	1,570	1,550	0	390,623
	93	214,276	232,241	116,009	6,514	27,137	0	596,177
	88	NA	NA	319,961	161,751	247,039	129,407	NA
4,4'-Isopropylidenediphenol	95	2,027	408,778	105,467	21,011	420,944	0	958,227
	94	2,377	54,939	100,005	19,360	392,926	0	569,607
	93	84	34,556	40,194	32,724	367,333	0	474,891
	88	NA	NA	995,810	31,135	444,560	1,000	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾
Continued.

CAS Number	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
7439-92-1	Lead	95	816	342,989	387,105	10,595	0	2,342,855	3,083,544
		94	829	96,288	321,172	12,264	0	501,489	931,213
		93	821	236,441	462,688	24,591	0	3,336,177	4,059,897
		88	864	484,036	644,430	61,791	5	6,648,946	7,839,208
—	Lead compounds	95	823	392,155	910,473	54,158	912	12,340,666	13,698,364
		94	855	510,174	892,841	54,979	1,263	14,652,126	16,111,383
		93	881	239,399	800,372	50,472	1,768	13,292,669	14,384,680
		88	732	355,237	1,178,119	180,363	2,755	20,035,109	21,751,583
58-89-9	Lindane	95	9	250	250	0	0	0	500
		94	8	280	299	5	0	5	589
		93	8	277	298	0	0	5	580
		88	3	251	7	0	0	0	258
108-31-6	Maleic anhydride	95	207	77,626	262,934	18	5	1,406	341,989
		94	212	76,903	171,186	312	5	2,288	250,694
		93	206	61,297	311,050	403	5	4,062	376,817
		88	199	126,174	550,604	12,580	240,000	250	929,608
12427-38-2	Maneb	95	6	5	268	0	0	0	273
		94	6	255	17	0	0	0	272
		93	6	510	520	0	0	0	1,030
		88	6	1,000	1,265	250	0	0	2,515
7439-96-5	Manganese	95	1,446	459,384	226,972	116,516	17	8,330,322	9,133,211
		94	1,427	557,606	232,443	88,900	10	8,492,069	9,371,028
		93	1,367	392,633	499,984	243,573	504	7,584,191	8,720,885
		88	935	1,045,626	538,632	321,992	255	20,229,826	22,136,331
—	Manganese compounds	95	984	703,340	2,121,478	822,341	3,590	41,326,472	44,977,221
		94	991	1,121,413	1,855,715	747,575	5,930	37,723,764	41,454,397
		93	1,006	773,866	1,498,650	565,732	8,740	47,206,729	50,053,717
		88	541	582,702	1,215,549	681,469	6,816,070	84,226,474	93,522,264
7439-97-6	Mercury	95	24	8,689	4,466	192	0	1,016	14,363
		94	20	7,745	3,424	175	0	1,351	12,695
		93	22	9,114	2,528	267	0	1,801	13,710
		88	37	15,791	7,114	1,397	0	13,279	37,581
—	Mercury compounds	95	10	2,009	1,147	136	6	0	3,298
		94	9	2,012	704	146	7	0	2,869
		93	13	2,507	914	179	15	11	3,626
		88	15	1,006	1,370	9	27	0	2,412
67-56-1	Methanol	95	2,412	30,910,899	179,265,280	8,378,058	24,812,653	1,645,466	245,012,356
		94	2,471	32,319,798	173,727,806	10,892,290	25,051,442	2,591,209	244,582,545
		93	2,478	31,157,983	145,001,904	10,136,032	28,839,963	1,847,574	216,983,456
		88	2,502	48,187,460	209,363,777	17,040,114	26,557,686	11,911,136	313,060,173
72-43-5	Methoxychlor	95	2	0	0	0	0	0	0
		94	3	5	5	0	0	0	10
		93	4	91	5	5	0	0	101
		88	12	47,721	83,310	252	0	258	131,541
109-86-4	2-Methoxyethanol	95	45	147,418	705,410	12,407	0	5	865,240
		94	59	160,528	464,427	15,898	0	20	640,873
		93	68	498,431	664,622	85,820	0	2	1,248,875
		88	95	1,148,256	4,751,413	40,520	750	7	5,940,946
96-33-3	Methyl acrylate	95	71	71,308	172,606	5,962	159	0	250,035
		94	68	93,969	165,346	480	95	89	259,979
		93	64	109,381	82,794	442	130	88	192,835
		88	61	332,710	110,786	1,687	200	30,260	475,643



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ³⁵ Pounds	Transfers to Energy Recovery ³⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
Lead	95	63,309,539	6,469	1,706,388	20,309	2,035,049	760	67,078,514
	94	56,010,516	12,540	706,313	28,292	1,672,409	200,000	58,630,070
	93	41,164,045	7,789	522,495	28,022	2,139,472	750	43,862,573
	88	NA	NA	2,901,988	122,508	10,728,220	254,573	NA
Lead compounds	95	287,825,976	62,461	5,814,525	38,025	16,981,225	1,257,760	311,979,972
	94	296,182,220	72,421	5,385,760	61,229	20,725,444	21,250	322,448,324
	93	249,739,088	75,387	2,506,370	111,060	20,549,837	45,299	273,027,041
	88	NA	NA	2,254,991	91,166	14,252,634	669,659	NA
Lindane	95	0	0	2,809	0	20	0	2,829
	94	0	0	2,462	5	42	0	2,509
	93	0	0	3,992	6	67	0	4,065
	88	NA	NA	130	0	56	0	NA
Maleic anhydride	95	0	102,756	1,143,608	10,660	14,429	0	1,271,453
	94	750	140,204	881,930	4,813	23,262	0	1,050,959
	93	0	112,033	783,929	2,980	25,827	0	924,769
	88	NA	NA	1,725,648	556,373	132,148	1,150	NA
Maneb	95	0	5	6,500	0	2,461	0	8,966
	94	0	0	1,698	0	13,553	0	15,251
	93	0	0	260	0	125,841	0	126,101
	88	NA	NA	2,077	1,470	5,285	0	NA
Manganese	95	76,708,995	345	1,387,882	75,616	10,526,703	750	88,700,291
	94	70,882,521	900	481,438	53,317	12,998,501	2,293,473	86,710,150
	93	52,955,688	253	506,264	50,951	11,122,850	976,335	65,612,341
	88	NA	NA	4,208,789	132,683	17,887,892	3,440,856	NA
Manganese compounds	95	48,997,808	196,541	3,882,936	325,508	22,866,004	520,320	76,789,117
	94	51,443,392	45,052	3,948,524	402,050	22,585,873	5	78,424,896
	93	45,871,643	23,682	3,319,774	378,519	19,904,390	27,250	69,525,258
	88	NA	NA	1,376,268	1,843,019	18,013,696	423,308	NA
Mercury	95	58,206	0	11,589	19	6,103	871	76,788
	94	21,223	0	3,807	10	12,590	0	37,630
	93	11,639	0	1,265	15	17,330	0	30,249
	88	NA	NA	38,548	1,364	218,830	0	NA
Mercury compounds	95	0	505	5,150	5	201,972	0	207,632
	94	3,685	0	49	5	26,121	0	29,860
	93	12,000	0	486	6	55,549	0	68,041
	88	NA	NA	256	528	17,133	0	NA
Methanol	95	23,207,662	94,838,423	31,243,694	89,081,289	1,929,344	109,611	240,410,023
	94	16,372,259	76,650,938	32,280,642	94,059,539	2,240,590	0	221,603,968
	93	15,937,261	69,510,364	35,262,933	98,230,973	3,438,692	388	222,380,611
	88	NA	NA	40,029,552	121,263,646	15,291,235	3,570,258	NA
Methoxychlor	95	0	0	0	0	0	0	0
	94	0	0	5	0	0	0	5
	93	0	0	15	0	5	0	20
	88	NA	NA	6,551	0	8	0	NA
2-Methoxyethanol	95	0	1,916,061	126,573	1,076,268	285	0	3,119,187
	94	4,300	1,628,616	201,086	1,131,051	58,369	0	3,023,422
	93	320	580,965	327,097	855,415	16,300	0	1,780,097
	88	NA	NA	826,153	622,102	57,362	715	NA
Methyl acrylate	95	40,447	184,341	92,773	23,261	865	0	341,687
	94	25,098	358,071	98,412	3,260	6,318	0	491,159
	93	14,736	255,044	17,229	8,484	1,595	0	297,088
	88	NA	NA	14,040	14,886	4,765	0	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾
Continued.

CAS Number	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
1634-04-4	Methyl tert-butyl ether	95	180	1,030,032	2,355,182	78,554	15,238	3,929	3,482,935
		94	181	912,662	2,206,006	92,140	29,645	2,225	3,242,678
		93	142	942,928	2,766,078	94,215	9,406	409	3,813,036
		88	90	617,340	1,970,907	21,499	14,400	370	2,624,516
101-14-4	4,4'-Methylenebis(2-chloro- aniline)	95	22	250	10	0	0	0	260
		94	20	10	10	0	0	0	20
		93	17	10	5	0	0	0	15
		88	8	250	0	0	0	0	250
101-61-1	4,4'-Methylenebis(N,N- dimethyl) benzeneamine	95	2	5	5	0	0	0	10
		94	No Reports Received						
		93	No Reports Received						
		88	1	250	0	0	0	7,000	7,250
74-95-3	Methylene bromide	95	5	22,539	40,552	0	0	0	63,091
		94	6	36,765	35,080	0	5,700	0	77,545
		93	7	42,558	13,759	0	0	0	56,317
		88	9	34,468	23,255	0	0	0	57,723
101-77-9	4,4'-Methylenedianiline	95	25	8,546	1,791	63	23,110	0	33,510
		94	27	6,669	3,073	725	26,064	0	36,531
		93	27	15,313	2,961	291	9,750	135	28,450
		88	31	36,804	93,461	2,599	460,250	1,140	594,254
78-93-3	Methyl ethyl ketone	95	2,255	24,861,372	44,485,984	63,120	556,607	87,856	70,054,939
		94	2,422	27,584,990	51,882,531	108,385	575,848	38,168	80,189,922
		93	2,490	29,520,262	56,733,720	191,018	360,927	134,221	86,940,148
		88	2,528	41,980,079	99,076,559	91,476	255,955	166,597	141,570,666
60-34-4	Methyl hydrazine	95	3	250	250	0	0	0	500
		94	3	278	260	0	0	0	538
		93	2	25	0	0	0	0	25
		88	3	2,774	153	1	0	0	2,928
74-88-4	Methyl iodide	95	6	20,747	871	0	10,000	0	31,618
		94	4	30,383	11	0	0	0	30,394
		93	4	33,233	907	14	0	0	34,154
		88	3	5,691	3,253	5	250	0	9,199
108-10-1	Methyl isobutyl ketone	95	1,001	5,629,446	15,874,810	51,282	158,600	7,041	21,721,179
		94	1,043	6,872,652	18,547,950	80,177	131,600	12,201	25,644,580
		93	1,026	7,799,723	17,552,936	90,214	131,600	76,771	25,651,244
		88	1,011	13,049,874	18,985,959	762,108	116,650	31,770	32,946,361
624-83-9	Methyl isocyanate	95	5	1,344	314	0	0	0	1,658
		94	4	18,730	1,005	0	0	0	19,735
		93	4	4,490	18,529	0	0	0	23,019
		88	12	9,649	586	0	0	64	10,299
80-62-6	Methyl methacrylate	95	265	484,024	1,781,273	2,177	120,000	1,056	2,388,530
		94	264	644,439	1,798,917	4,664	120,000	69	2,568,089
		93	253	685,062	1,732,441	8,237	260,000	2,606	2,688,346
		88	218	1,346,194	2,284,375	28,437	327,220	8,119	3,994,345
90-94-8	Michler's ketone	95	1	0	1,577	0	0	0	1,577
		94	1	0	814	0	0	0	814
		93	1	100	1,442	0	0	0	1,542
		88	4	450	650	0	0	0	1,100
1313-27-5	Molybdenum trioxide	95	156	135,886	46,901	63,555	333,730	85,442	665,514
		94	154	140,505	37,066	60,848	161,340	71,814	471,573
		93	145	127,598	52,386	61,969	202,775	32,449	477,177
		88	101	37,672	73,523	139,021	197,115	97,238	544,569



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ³⁶ Pounds	Transfers to Energy Recovery ³⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
Methyl tert-butyl ether	95	32,736	1,361,095	420,220	101,520	47,836	0	1,963,407
	94	17,184	923,399	546,939	95,945	117,753	0	1,701,220
	93	31,756	657,873	33,893	93,942	134,331	0	951,795
	88	NA	NA	93,575	7,713	4,602	0	NA
4,4'-Methylenebis(2-chloro-aniline)	95	0	2,017	6,724	5	5	0	8,751
	94	0	5,848	1,069	5	1,300	0	8,222
	93	0	2,148	464	5	750	0	3,367
	88	NA	NA	6,250	0	0	0	NA
4,4'-Methylenebis(N,N-dimethyl) benzeneamine	95	0	0	0	0	0	0	0
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA	0	0	1,150	0	NA
Methylene bromide	95	0	0	0	979	0	0	979
	94	6,200	1,300	250	1,114	0	0	8,864
	93	0	750	584	2,489	0	0	3,823
	88	NA	NA	0	6,097	0	0	NA
4,4'-Methylenedianiline	95	0	17,264	92,309	2,026	9,673	0	121,272
	94	0	6,295	174,060	1,889	4,103	0	186,347
	93	0	8,530	72,400	2,152	5,174	0	88,256
	88	NA	NA	139,349	7,399	141,538	0	NA
Methyl ethyl ketone	95	23,732,285	42,506,199	5,828,360	502,492	221,531	5,830	72,796,697
	94	22,247,540	46,559,930	6,215,490	410,996	432,645	1,000	75,867,601
	93	22,604,650	46,218,937	5,671,266	753,340	420,304	2,573	75,671,070
	88	NA	NA	22,189,575	964,168	5,014,725	2,054,502	NA
Methyl hydrazine	95	0	0	5	0	0	0	5
	94	0	0	863	0	0	0	863
	93	0	0	74	0	0	0	74
	88	NA	NA	1,250	0	1,450	0	NA
Methyl iodide	95	0	0	760	0	8,600	0	9,360
	94	0	250	250	0	2,450	0	2,950
	93	0	350	230	0	27	0	607
	88	NA	NA	0	0	250	0	NA
Methyl isobutyl ketone	95	16,264,345	18,040,099	1,577,947	398,689	97,316	3,866	36,382,262
	94	17,959,794	18,858,914	1,653,180	488,749	81,354	4,022	39,046,013
	93	22,888,509	12,055,380	1,406,124	636,214	126,568	2,283	37,115,078
	88	NA	NA	6,075,272	1,509,030	1,966,238	2,467,760	NA
Methyl isocyanate	95	0	0	0	0	0	0	0
	94	0	0	0	0	0	0	0
	93	0	0	0	0	0	0	0
	88	NA	NA	314	0	8,400	0	NA
Methyl methacrylate	95	19,750	1,436,890	458,692	255,733	215,679	0	2,386,744
	94	22,185	1,342,473	724,167	285,764	356,288	0	2,730,877
	93	82,310	1,044,539	663,896	265,342	274,425	0	2,330,512
	88	NA	NA	2,787,477	191,071	276,567	37,511	NA
Michler's ketone	95	0	436	0	0	0	0	436
	94	0	145	0	0	0	0	145
	93	0	216	0	0	0	0	216
	88	NA	NA	33,519	0	0	0	NA
Molybdenum trioxide	95	2,526,746	3,530	220,729	60,213	1,052,836	0	3,864,054
	94	3,059,005	0	326,967	62,262	389,848	0	3,838,082
	93	3,308,590	0	78,594	34,806	447,639	0	3,869,629
	88	NA	NA	7,336	34,044	573,624	20,000	NA

Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾
Continued.

CAS Number ⁽³⁾	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
91-20-3	Naphthalene	95	516	1,300,991	1,270,998	43,311	15,569	29,072	2,659,941
		94	528	1,515,332	1,308,371	28,179	88,200	47,014	2,987,096
		93	489	1,497,419	1,200,159	31,203	79,814	49,881	2,858,476
		88	420	3,421,071	1,740,741	22,518	50,946	123,956	5,359,232
134-32-7	alpha-Naphthylamine	95	1	0	0	0	0	0	0
		94	2	5	5	0	0	0	10
		93	2	5	5	0	0	0	10
		88	3	336	254	101	0	0	691
7440-02-0	Nickel	95	1,798	146,458	180,645	23,703	6,370	371,024	728,200
		94	1,783	427,375	143,983	31,369	7,080	389,145	998,952
		93	1,736	335,663	157,752	39,620	7,878	455,621	996,534
		88	1,168	270,206	181,996	90,386	14,295	1,225,251	1,782,134
—	Nickel compounds	95	860	107,385	156,149	53,029	107,136	2,291,930	2,715,629
		94	839	105,671	133,946	67,533	55,861	1,310,220	1,673,231
		93	838	56,860	133,941	57,793	122,160	2,868,931	3,239,685
		88	571	155,383	115,982	132,233	224,968	2,384,332	3,012,898
7697-37-2	Nitric acid	95	1,786	633,752	1,674,713	46,581	18,755,717	233,746	21,344,509
		94	1,836	656,759	1,775,866	167,499	18,269,660	510,050	21,379,834
		93	1,863	755,661	2,312,727	180,513	19,213,898	421,295	22,884,094
		88	1,921	1,111,293	7,166,891	1,380,565	25,485,680	1,330,695	36,475,124
139-13-9	Nitriiotriacetic acid	95	7	1	0	34	2,900	0	2,935
		94	8	8	5	2,748	500	0	3,261
		93	7	7	5	6,442	500	0	6,954
		88	14	1,000	1,500	5,100	0	5,100	12,700
99-59-2	5-Nitro-o-anisidine	95	1	5	5	0	0	0	10
		94	1	5	5	0	0	0	10
		93	1	5	5	0	0	0	10
		88	No Reports Received						
98-95-3	Nitrobenzene	95	16	17,106	8,377	874	330,344	43	356,744
		94	15	34,194	6,762	1,999	815,285	226	858,466
		93	15	64,830	7,807	309	309,441	328	382,715
		88	19	22,616	18,663	7,283	819,000	3,538	871,100
55-63-0	Nitroglycerin	95	19	1,678	24,399	13,305	0	0	39,382
		94	19	1,842	34,233	11,544	0	0	47,619
		93	19	2,297	28,232	28,012	0	250	58,791
		88	21	2,280	50,103	2,746	0	11,640	66,769
88-75-5	2-Nitrophenol	95	4	5	33	50	0	0	88
		94	4	0	18	67	0	0	85
		93	5	5	24	7	0	0	36
		88	4	32,152	1,537	1	0	2	33,692
100-02-7	4-Nitrophenol	95	6	910	35	0	0	0	945
		94	5	920	81	0	0	0	1,001
		93	5	654	91	33	0	0	778
		88	7	7,642	213	0	6,300	7	14,162
79-46-9	2-Nitropropane	95	5	21,057	10,208	3,000	0	0	34,265
		94	7	22,842	14,381	3,300	0	0	40,523
		93	7	39,191	9,137	1,200	0	0	49,528
		88	15	208,303	181,082	4,300	257,000	0	650,685
62-75-9	N-Nitrosodimethylamine	95	No Reports Received						
		94	No Reports Received						
		93	No Reports Received						
		88	1	0	0	0	0	0	0



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ³⁶ Pounds	Transfers to Energy Recovery ³⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
Naphthalene	95	296,695	1,873,964	1,118,883	17,959	473,758	0	3,781,259
	94	435,645	1,202,276	559,822	15,621	496,506	0	2,709,870
	93	341,922	1,543,575	411,019	24,357	334,485	0	2,655,358
	88	NA	NA	536,139	800,227	1,359,184	31,000	NA
alpha-Naphthylamine	95	0	0	0	0	0	0	0
	94	0	0	0	0	0	0	0
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	0	0	NA
Nickel	95	71,452,433	1,348	788,561	79,195	2,940,851	516	75,262,904
	94	75,523,519	3,057	1,141,483	94,741	3,306,013	9,930	80,078,743
	93	64,171,255	1,529	981,996	110,113	2,437,654	34,874	67,737,421
	88	NA	NA	1,178,986	252,734	6,425,556	277,805	NA
Nickel compounds	95	28,930,230	5,841	1,228,399	100,671	5,615,280	755	35,881,176
	94	32,246,767	1,034	1,542,354	123,475	5,164,232	0	39,077,862
	93	32,171,137	6,593	1,394,491	118,382	5,320,666	19,935	39,031,204
	88	NA	NA	1,886,744	652,082	3,903,585	217,385	NA
Nitric acid	95	3,500,782	255	10,964,512	4,589,259	4,815,828	23,808	23,894,444
	94	3,238,193	3	10,689,416	3,422,796	3,537,114	0	20,887,522
	93	2,474,601	44	11,783,606	2,188,116	2,662,290	250	19,108,907
	88	NA	NA	18,442,846	22,432,957	7,929,318	48,202	NA
Nitrilotriacetic acid	95	0	0	1,872	0	0	0	1,872
	94	0	0	2,080	0	0	0	2,080
	93	0	0	0	0	0	0	0
	88	NA	NA	190,753	254,859	250	0	NA
5-Nitro-o-anisidine	95	0	0	0	5	0	0	5
	94	0	0	0	5	0	0	5
	93	0	0	0	5	0	0	5
	88	NA	NA	0	5	0	0	NA
Nitrobenzene	95	0	77,514	627,862	219	961	0	706,556
	94	3,603	24,351	458,135	289	2,290	0	488,668
	93	3,370	19,340	288,124	118	790	0	311,742
	88	NA	NA	1,301,075	5,671	69,570	750	NA
Nitroglycerin	95	0	35,138	21,914	203	0	0	57,255
	94	39,276	0	92,023	263	6	0	131,568
	93	3,551	2	48,379	52	6	0	51,990
	88	NA	NA	3,581	53	2	0	NA
2-Nitrophenol	95	0	6	24,011	58	0	0	24,075
	94	0	0	20,189	180	0	0	20,369
	93	0	4,592	42,430	130	0	0	47,152
	88	NA	NA	1,600	149,000	13,100	0	NA
4-Nitrophenol	95	0	3	574,817	176	0	0	574,996
	94	0	0	583,000	186	3	0	583,189
	93	0	0	923,001	245	4	0	923,250
	88	NA	NA	0	560,428	70	0	NA
2-Nitropropane	95	520	314	0	0	0	0	834
	94	3,300	1,779	29	0	0	0	5,108
	93	3,400	103	12,298	0	0	0	15,801
	88	NA	NA	8,910	3,000	4,785	0	NA
N-Nitrosodimethylamine	95	No Reports Received						
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA	0	0	0	0	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽¹⁾
Continued.

CAS Number	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
86-30-6	N-Nitrosodiphenylamine	95	2	10	0	0	0	0	10
		94	1	0	0	0	0	0	0
		93	1	0	0	0	0	0	0
		88	2	0	0	27	34,000	0	34,027
156-10-5	p-Nitrosodiphenylamine	95	2	24	0	0	0	0	24
		94	2	24	0	0	0	0	24
		93	2	24	0	0	5,400	0	5,424
		88	2	15	0	0	2,000	0	2,015
59-89-2	N-Nitrosomorpholine	95	1	0	0	0	0	0	0
		94	No Reports Received						
		93	No Reports Received						
		88	No Reports Received						
56-38-2	Parathion	95	2	0	0	0	0	0	0
		94	2	1,142	5	0	0	0	1,147
		93	3	1,215	5	5	0	0	1,225
		88	13	2,258	1,007	750	0	250	4,265
87-86-5	Pentachlorophenol	95	36	1,825	4,441	2,439	0	250	8,955
		94	35	4,511	17,112	1,458	0	250	23,331
		93	39	5,673	5,465	2,541	0	255	13,934
		88	55	8,133	5,896	2,465	20,000	3,717	40,211
79-21-0	Peracetic acid	95	22	5,743	36,599	15	0	582	42,939
		94	21	26,443	5,148	15	0	270	31,876
		93	15	847	2,612	53	0	260	3,772
		88	8	766	4,687	55	0	0	5,508
108-95-2	Phenol	95	735	2,343,063	6,720,846	69,875	3,723,235	171,344	13,028,363
		94	726	2,530,937	5,984,795	120,772	3,224,053	172,240	12,032,797
		93	683	1,932,996	4,896,902	128,091	2,994,279	200,456	10,152,724
		88	633	4,543,788	6,167,760	258,500	4,661,319	1,882,485	17,513,852
106-50-3	p-Phenylenediamine	95	10	3,466	974	856	0	653	5,949
		94	10	2,845	2,098	1,260	0	2,624	8,827
		93	9	342	3,190	1,004	0	1,051	5,587
		88	13	2,210	111,680	826	4,716	0	119,432
90-43-7	2-Phenylphenol	95	17	61	27,002	10	0	5	27,078
		94	18	7,784	35,223	15	0	2	43,024
		93	19	25,409	1,089	57	0	255	26,810
		88	15	9,010	1,620	480	0	0	11,110
75-44-5	Phosgene	95	28	2,902	6,192	0	5	0	9,099
		94	29	2,826	6,050	0	5	0	8,881
		93	33	3,035	2,660	0	5	0	5,700
		88	37	3,839	17,764	500	250	0	22,353
7664-38-2	Phosphoric acid	95	2,739	440,282	823,010	20,402,696	7,560	35,884,482	57,558,030
		94	2,727	285,002	758,599	20,900,384	45,616	58,985,481	80,975,082
		93	2,730	503,720	759,273	175,861,627	33,789	37,115,934	214,274,343
		88	2,533	727,787	1,235,954	122,647,164	53,711	52,615,971	177,280,587
7723-14-0	Phosphorus (yellow or white)	95	52	22,588	6,033	3,661	0	3,906	36,188
		94	51	27,686	4,148	9,391	0	9,543	50,768
		93	52	25,089	5,195	4,987	5	37,505	72,781
		88	73	9,049	11,559	11,322	0	3,893,674	3,925,604
85-44-9	Phthalic anhydride	95	182	74,225	530,376	711	0	674	605,986
		94	179	98,814	331,805	362	0	0	430,981
		93	181	90,815	395,863	457	0	226	487,361
		88	180	126,906	423,003	1,040	0	1,265	552,214



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ⁶⁶ Pounds	Transfers to Energy Recovery ⁶⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁶⁷ Pounds	Total Transfers ⁶⁸ Pounds
N-Nitrosodiphenylamine	95	0	0	337,000	0	0	0	337,000
	94	0	0	200,000	0	0	0	200,000
	93	0	0	474,000	0	0	0	474,000
	88	NA	NA	300	0	0	0	NA
p-Nitrosodiphenylamine	95	0	15,000	65	0	520	0	15,585
	94	0	16,000	0	0	0	0	16,000
	93	0	15,000	0	0	0	0	15,000
	88	NA	NA	0	0	180	0	NA
N-Nitrosomorpholine	95	0	0	0	0	0	0	0
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA					NA
Parathion	95	0	0	0	0	0	0	0
	94	0	0	1,035	0	15,027	0	16,062
	93	0	0	7,847	0	0	0	7,847
	88	NA	NA	1,321	0	3,959	0	NA
Pentachlorophenol	95	360	14,354	49,742	900	23,942	0	89,298
	94	250	24,982	44,970	1,798	24,343	0	96,343
	93	1,010	40,981	69,218	1,133	34,860	0	147,202
	88	NA	NA	27,568	4,728	518,105	0	NA
Peracetic acid	95	0	0	10,300	2,396	0	0	12,696
	94	0	0	0	2,138	0	0	2,138
	93	0	0	110	3,689	0	0	3,799
	88	NA	NA	0	0	0	0	NA
Phenol	95	344,614	3,695,188	3,235,034	3,859,436	1,269,184	5,100	12,408,556
	94	494,671	3,381,577	2,916,879	2,968,474	1,579,620	500	11,341,721
	93	869,280	2,386,732	2,589,383	3,817,038	1,379,640	19,535	11,061,608
	88	NA	NA	3,668,466	6,046,640	2,536,030	328,571	NA
p-Phenylenediamine	95	0	0	16,312	4,150	0	0	20,462
	94	0	0	23,968	3,600	0	0	27,568
	93	0	0	28,693	3,830	7,900	0	40,423
	88	NA	NA	53,471	6,277	64,452	0	NA
2-Phenylphenol	95	0	0	0	3,626	5,656	0	9,282
	94	0	0	121	3,537	1,507	0	5,165
	93	0	260	0	3,687	1,005	0	4,952
	88	NA	NA	0	6,400	250	0	NA
Phosgene	95	0	0	2,414	0	0	0	2,414
	94	0	0	158	0	0	0	158
	93	0	0	1,000	0	0	0	1,000
	88	NA	NA	1,040	0	480	0	NA
Phosphoric acid	95	11,427,354	61,289	1,807,719	3,395,801	1,805,527	33,250	18,530,940
	94	9,473,740	45,269	2,217,118	3,874,642	2,603,266	505	18,214,540
	93	9,401,476	1,015	2,208,104	4,300,449	2,170,939	490	18,082,473
	88	NA	NA	3,270,219	13,812,027	5,303,543	743,381	NA
Phosphorus (yellow or white)	95	26,059	0	147,492	505	23,650	0	197,706
	94	183,411	0	55,407	258	14,017	0	253,093
	93	165,480	0	27,996	2,355	5,467	0	201,298
	88	NA	NA	14,074	646	195,013	946	NA
Phthalic anhydride	95	1,261	4,951,064	335,251	51,793	76,916	0	5,416,285
	94	2,781	4,342,281	243,593	9,483	105,929	0	4,704,067
	93	0	4,003,843	192,250	5,295	157,425	0	4,358,813
	88	NA	NA	2,877,574	53,441	3,976,682	21,803	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾
Continued.

CAS Number ⁽³⁾	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
88-89-1	Picric acid	95	9	219	2	0	49,256	0	49,477
		94	9	2	2	2	43,958	2	43,966
		93	8	2	2	1	64,294	1	64,300
		88	5	251	1	251	1,362,180	250	1,362,933
—	Polybrominated biphenyls	95	1	0	0	0	0	0	0
		94	2	0	0	0	0	0	0
		93	1	0	0	0	0	0	0
		88	1	250	0	0	0	0	250
1336-36-3	Polychlorinated biphenyls (PCBs)	95	9	0	0	0	0	0	0
		94	13	0	0	0	0	0	0
		93	16	0	0	0	0	265	265
		88	121	6	0	10	0	752	768
1120-71-4	Propane sultone	95	1	0	0	0	0	0	0
		94	1	0	0	0	0	0	0
		93	1	250	0	0	0	0	250
		88	2	0	0	0	0	0	0
123-38-6	Propionaldehyde	95	22	78,124	136,913	27,012	101,432	0	343,481
		94	22	336,713	146,685	21	66,352	0	549,771
		93	21	326,650	133,287	56	63,995	0	523,988
		88	15	399,253	868,586	1,156	930	0	1,269,925
114-26-1	Propoxur	95	5	0	5	0	0	0	5
		94	3	0	4	0	0	0	4
		93	4	0	5	0	0	0	5
		88	5	250	0	0	0	0	250
115-07-1	Propylene	95	341	11,551,638	10,009,591	4,045	0	42	21,565,316
		94	343	12,541,020	9,087,211	4,584	0	0	21,632,815
		93	326	13,386,028	7,200,269	175,120	0	0	20,761,417
		88	333	18,441,358	13,612,619	10,003	0	0	32,063,980
75-55-8	Propyleneimine	95	7	564	36	0	0	0	600
		94	7	216	265	0	0	0	481
		93	7	24	315	0	0	0	339
		88	1	250	250	0	0	0	500
75-56-9	Propylene oxide	95	124	345,822	493,042	29,934	22,577	4,403	895,778
		94	120	356,231	740,958	12,695	22,195	6,151	1,138,230
		93	122	335,919	831,842	6,390	5,151	6,197	1,185,499
		88	128	896,638	2,783,577	112,503	1,113,780	11,630	4,918,128
110-86-1	Pyridine	95	39	60,722	36,582	830	446,000	4	544,138
		94	37	68,053	42,301	1,409	358,200	0	469,963
		93	32	49,741	53,474	899	412,200	49	516,363
		88	31	143,881	107,918	2,158	491,775	1,125	746,857
91-22-5	Quinoline	95	22	7,287	3,875	20	13,000	405	24,587
		94	21	7,665	19,757	35	63,000	571	91,028
		93	24	4,281	19,963	50	63,000	195	87,489
		88	34	31,633	17,717	502	0	896	50,748
106-51-4	Quinone	95	4	3,800	3,301	1,500	0	0	8,601
		94	4	9,900	2,101	1,600	0	0	13,601
		93	5	14,000	2,101	1,400	0	0	17,501
		88	5	4,600	6,700	140	0	0	11,440
82-68-8	Quintozene	95	10	914	510	0	0	800	2,224
		94	12	1,771	787	0	0	0	2,558
		93	10	1,516	778	0	0	0	2,294
		88	6	750	314	0	0	0	1,064



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ⁶³ Pounds	Transfers to Energy Recovery ⁶³ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ⁶⁷ Pounds	Total Transfers ⁶³ Pounds
Picric acid	95	0	2	0	0	0	0	2
	94	0	13	836	0	0	0	849
	93	0	0	0	0	0	0	0
	88	NA	NA	14,000	0	0	0	NA
Polybrominated biphenyls	95	0	0	0	0	0	0	0
	94	0	0	0	0	250	0	250
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	0	0	NA
Polychlorinated biphenyls (PCBs)	95	0	0	645,345	0	34,432	0	679,777
	94	0	0	934,464	0	94,962	0	1,029,426
	93	0	4	857,363	265	164,205	0	1,021,837
	88	NA	NA	5,149,843	250	488,732	23,550	NA
Propane sultone	95	0	0	0	0	0	0	0
	94	0	0	0	0	0	0	0
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	0	0	NA
Propionaldehyde	95	0	5,565	36	87,484	0	0	93,085
	94	0	12,994	1	1,760	26,948	0	41,703
	93	0	13,333	1	1,155	3,167	0	17,656
	88	NA	NA	1,600	761	0	0	NA
Propoxur	95	0	0	1,500	250	0	250	2,000
	94	0	0	1,805	140	31	0	1,976
	93	0	0	750	250	0	0	1,000
	88	NA	NA	0	0	250	0	NA
Propylene	95	0	3,132,286	80,240	5	298	0	3,212,829
	94	0	2,159,280	280,113	5	269	0	2,439,667
	93	0	2,188,040	388,948	5	482	0	2,577,475
	88	NA	NA	1,521,069	500	3,320	0	NA
Propyleneimine	95	0	0	0	0	0	0	0
	94	0	0	0	0	0	0	0
	93	0	0	0	0	0	0	0
	88	NA	NA	0	250	0	0	NA
Propylene oxide	95	0	281,155	36,882	350,949	8,633	0	677,619
	94	66	5,164	6,148	374,871	48,801	4	435,054
	93	0	95,414	15,534	25,877	9,597	0	146,422
	88	NA	NA	1,091	386,355	16,626	35	NA
Pyridine	95	14,008	185,968	190,110	291,689	66	0	681,841
	94	4,178	129,674	177,365	350,839	1,201	0	663,257
	93	3,609	184,027	93,910	309,895	4,977	0	596,418
	88	NA	NA	56,729	275,083	40,699	0	NA
Quinoline	95	2,243	251	16,365	250	3,744	0	22,853
	94	4,178	7,500	38,602	260	5,054	0	55,594
	93	3,609	16,015	1,952	505	5,997	0	28,078
	88	NA	NA	4,945	6,406	6,242	0	NA
Quinone	95	0	1,328	30,173	0	0	0	31,501
	94	0	0	26,186	0	0	0	26,186
	93	0	0	6,776	0	0	0	6,776
	88	NA	NA	280	250	0	0	NA
Quintozene	95	0	0	759,393	88	192	0	759,673
	94	0	0	543,692	1,012	161	0	544,865
	93	0	0	522,354	515	478	0	523,347
	88	NA	NA	0	250	12,625	0	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾
Continued.

CAS Number ⁽³⁾	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
81-07-2	Saccharin (manufacturing)	95	1	90	9	0	0	0	99
		94	2	60	20	0	0	0	80
		93	2	50	251	0	0	0	301
		88	4	250	500	0	0	0	750
94-59-7	Safrole	95	1	250	5	0	0	0	255
		94	No Reports Received						
		93	No Reports Received						
		88	2	250	250	0	0	0	500
7782-49-2	Selenium	95	15	5	1,445	92	0	23	1,565
		94	12	88	367	113	0	7	575
		93	15	334	1,200	0	0	256	1,790
		88	24	2,251	14,031	1,168	0	127,508	144,958
—	Selenium compounds	95	36	2,651	68,552	2,184	3,640	110,250	187,277
		94	40	3,519	59,865	2,470	3,410	180,086	249,350
		93	46	2,802	74,934	557	2,300	120,271	200,864
		88	17	2,251	12,255	250	3,400	45,750	63,906
7440-22-4	Silver	95	72	6,218	3,065	161	0	250	9,694
		94	67	7,047	3,643	176	250	270	11,386
		93	68	4,447	2,655	73	210	1,000	8,385
		88	72	11,480	36,508	1,654	0	39,510	89,152
—	Silver compounds	95	56	2,282	13,637	6,284	380	30,425	53,008
		94	59	2,732	15,367	6,580	140	28,843	53,662
		93	56	6,476	15,147	9,069	100	20,376	51,168
		88	46	5,991	9,415	8,684	250	11,550	35,890
100-42-5	Styrene	95	1,491	12,115,785	29,359,298	17,570	209,945	171,010	41,873,608
		94	1,518	13,769,751	25,967,580	75,579	250,861	477,915	40,541,686
		93	1,473	13,331,552	20,783,329	28,274	132,607	178,080	34,453,842
		88	1,254	12,956,268	21,104,656	59,069	165	242,941	34,363,099
96-09-3	Styrene oxide	95	5	1	12	0	0	0	13
		94	5	6	84	0	0	0	90
		93	5	304	78	0	0	0	382
		88	6	511	1,803	0	0	0	2,314
79-34-5	1,1,2,2-Tetrachloroethane	95	16	4,904	3,371	2,222	0	0	10,497
		94	16	10,227	2,257	1,517	26	0	14,027
		93	15	24,640	3,563	2,930	0	1	31,134
		88	13	25,904	17,961	1,903	0	29	45,797
127-18-4	Tetrachloroethylene	95	428	4,493,166	4,884,751	2,407	20,481	6	9,400,811
		94	467	4,912,796	5,615,514	3,877	4,051	4,349	10,540,587
		93	494	4,547,311	6,678,967	10,157	15,041	618,026	11,869,502
		88	747	16,336,532	19,786,515	33,314	72,250	82,144	36,310,755
961-11-5	Tetrachlorvinphos	95	4	20	606	5	0	0	631
		94	6	15	398	5	0	0	418
		93	5	265	374	5	0	0	644
		88	6	250	1	0	0	0	251
7440-28-0	Thallium	95	1	5	250	0	0	755	1,010
		94	1	5	250	0	0	755	1,010
		93	1	5	250	0	0	755	1,010
		88	No Reports Received						
—	Thallium compounds	95	No Reports Received						
		94	1	0	36	0	0	0	36
		93	No Reports Received						
		88	4	1	252	0	0	250	503



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ³⁶ Pounds	Transfers to Energy Recovery ³⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
Saccharin (manufacturing)	95	0	0	0	10	1,500	0	1,510
	94	0	0	0	10	1,400	0	1,410
	93	0	0	25,625	12	840	0	26,477
	88	NA	NA	0	7,900	750	0	NA
Safrole	95	0	0	0	5	0	0	5
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA	0	250	0	0	NA
Selenium	95	4,604	0	1,200	2,276	25	0	8,105
	94	28,325	0	1,200	15	20	0	29,560
	93	27,911	0	2,984	260	3,776	0	34,931
	88	NA	NA	3,145	1,250	2,617	500	NA
Selenium compounds	95	158,278	19	49,393	288	73,945	0	281,923
	94	136,856	255	31,492	307	25,216	0	194,126
	93	229,327	0	11,002	1,421	39,415	5	281,170
	88	NA	NA	1,631	1,860	61,116	0	NA
Silver	95	1,378,373	1	6,416	137	8,397	0	1,393,324
	94	855,546	13	36,779	591	3,958	0	896,887
	93	796,669	0	8,005	1,190	1,922	0	807,786
	88	NA	NA	23,875	3,624	3,263	0	NA
Silver compounds	95	897,457	0	22,365	2,064	2,492	0	924,378
	94	1,492,721	0	5,876	2,808	10,462	16,232	1,528,099
	93	1,450,290	0	2,229	6,451	14,219	0	1,473,189
	88	NA	NA	8,986	8,078	3,139	2,830	NA
Styrene	95	651,362	6,734,745	3,936,837	118,820	4,220,752	1,000	15,663,516
	94	1,428,292	5,418,922	4,041,757	117,889	4,408,875	5	15,415,740
	93	1,110,194	5,522,633	3,116,998	130,905	2,076,480	5	11,957,215
	88	NA	NA	5,696,394	479,835	2,011,796	1,260,446	NA
Styrene oxide	95	0	0	0	0	0	0	0
	94	0	884	0	0	0	0	884
	93	0	0	0	0	0	0	0
	88	NA	NA	0	250	750	0	NA
1,1,2,2-Tetrachloroethane	95	2,233,342	880	150,072	0	7	0	2,384,301
	94	2,227,120	0	40,807	0	52	0	2,267,979
	93	1,737,712	0	32,733	155	80	0	1,770,680
	88	NA	NA	74,982	400	128,750	0	NA
Tetrachloroethylene	95	6,585,432	1,094,487	1,894,883	14,996	72,961	75,924	9,738,683
	94	7,459,941	857,453	2,083,071	62,058	74,985	250	10,537,758
	93	6,312,831	823,702	2,405,332	111,007	56,340	9,709	9,718,921
	88	NA	NA	4,059,045	558,691	1,385,378	138,270	NA
Tetrachlorvinphos	95	0	47,000	4,230	0	4,200	0	55,430
	94	0	21,100	19,104	7	2,948	0	43,159
	93	0	6,900	4,310	17	8,825	0	20,052
	88	NA	NA	40,210	2	9,270	0	NA
Thallium	95	3,852	0	190	5	0	0	4,047
	94	5,040	0	250	5	0	0	5,295
	93	750	0	0	5	0	0	755
	88	NA	NA					NA
Thallium compounds	95	No Reports Received						
	94	0	0	0	0	0	0	0
	93	No Reports Received						
	88	NA	NA	250	6	1,000	0	NA



Chapter 5 — Year-to-Year Comparison of TRI Data

Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽¹⁾
Continued.

CAS Number ⁽²⁾	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
62-55-5	Thioacetamide	95	No Reports Received						
		94	No Reports Received						
		93	No Reports Received						
		88	1	250	250	0	0	0	500
62-56-6	Thiourea	95	26	872	758	1,487	5,000	250	8,367
		94	27	1,155	2,017	3,539	5,000	250	11,961
		93	26	857	515	2,611	5,300	288	9,571
		88	26	1,504	500	16,951	5,940	750	25,645
1314-20-1	Thorium dioxide	95	1	0	1	0	0	0	1
		94	1	0	0	0	0	0	0
		93	1	0	0	0	0	0	0
		88	3	230	1,350	0	0	0	1,580
7550-45-0	Titanium tetrachloride	95	33	15,877	4,422	0	0	0	20,299
		94	37	16,051	6,298	0	0	0	22,349
		93	38	19,012	5,610	0	0	100	24,722
		88	41	38,614	40,054	0	0	1,400	80,068
108-88-3	Toluene	95	3,370	52,017,387	93,446,998	53,287	303,491	66,306	145,887,469
		94	3,622	58,263,732	111,165,297	82,706	496,440	150,970	170,159,145
		93	3,683	62,012,921	116,793,699	119,983	1,017,496	237,961	180,182,060
		88	4,001	105,975,578	193,159,959	196,957	1,473,666	731,449	301,537,609
584-84-9	Toluene-2,4-diisocyanate	95	64	3,666	4,139	0	0	0	7,805
		94	76	9,705	25,736	0	0	0	35,441
		93	76	4,861	54,042	0	0	0	58,903
		88	257	46,634	118,428	0	0	1,040	166,102
91-08-7	Toluene-2,6-diisocyanate	95	40	984	2,060	0	0	0	3,044
		94	47	3,019	5,484	0	0	0	8,503
		93	44	2,240	4,509	0	0	0	6,749
		88	189	153,253	338,939	0	0	510	492,702
95-53-4	o-Toluidine	95	22	9,557	2,029	256	22,140	12	33,994
		94	23	9,770	2,365	534	30,300	6	42,975
		93	20	15,421	2,980	1,266	24,600	7	44,274
		88	18	19,196	27,726	1,902	250	5,024	54,098
52-68-6	Trichlorfon	95	2	0	0	0	0	0	0
		94	3	5	2	9	0	0	16
		93	3	5	1	7	0	0	13
		88	5	250	3	0	0	0	253
120-82-1	1,2,4-Trichlorobenzene	95	31	31,221	137,269	259	12,500	0	181,249
		94	33	30,090	137,190	970	15,200	830	184,280
		93	41	103,567	161,123	1,148	5,118	1,781	272,737
		88	56	438,009	1,094,904	31,628	7,408	3,073	1,575,022
71-55-6	1,1,1-Trichloroethane	95	781	10,908,176	11,692,921	1,118	126	39,220	22,641,561
		94	1,232	20,300,113	18,366,045	2,283	102	2,348	38,670,891
		93	2,127	33,375,909	31,826,300	11,151	2,528	42,743	65,258,631
		88	3,921	93,115,800	87,690,472	95,624	1,000	204,923	181,107,819
79-00-5	1,1,2-Trichloroethane	95	21	38,919	241,428	870	0	0	281,217
		94	23	41,184	268,938	914	0	0	311,036
		93	24	104,452	210,700	2,030	0	5	317,187
		88	29	618,608	1,122,834	5,303	0	89	1,746,834
79-01-6	Trichloroethylene	95	717	12,230,811	13,253,424	1,477	550	3,577	25,489,839
		94	789	14,859,385	15,530,026	1,671	288	4,417	30,395,787
		93	792	14,567,784	16,003,433	5,220	460	8,212	30,585,109
		88	951	26,168,126	29,759,510	13,801	390	21,186	55,963,013



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ³⁶ Pounds	Transfers to Energy Recovery ³⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
Thioacetamide	95	No Reports Received						NA
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA	250	0	0	0	
Thiourea	95	0	0	11,917	761	4,269	0	16,947
	94	0	0	1,821	1,860	2,572	0	6,253
	93	0	0	2,645	1,534	2,446	0	6,625
	88	NA	NA	2,511	26,634	2,303	0	NA
Thorium dioxide	95	0	0	0	2,600	0	0	2,600
	94	0	0	0	0	0	0	0
	93	0	0	0	0	42,000	0	42,000
	88	NA	NA	0	250	677,549	0	NA
Titanium tetrachloride	95	129,787	0	2,914	0	32,282	0	164,983
	94	3,500	0	317,482	0	150	0	321,132
	93	0	86	2,958,898	0	16	0	2,959,000
	88	NA	NA	1,667,045	0	0	0	NA
Toluene	95	24,457,543	76,070,848	20,995,221	849,352	892,000	5,168	123,270,132
	94	24,113,967	80,546,924	21,900,072	899,405	949,538	4,020	128,413,926
	93	31,248,302	81,361,292	22,431,906	1,038,059	1,151,477	88,618	137,319,654
	88	NA	NA	47,861,093	3,593,521	9,616,041	4,651,820	NA
Toluene-2,4-diisocyanate	95	1,400	23,160	11,636	0	611	0	36,807
	94	59,100	26,282	30,181	0	3,523	0	119,086
	93	81,888	16,620	59,063	0	9,938	0	167,509
	88	NA	NA	193,439	500	36,178	3	NA
Toluene-2,6-diisocyanate	95	0	3,705	1,546	0	153	0	5,404
	94	8,922	6,232	1,489	0	935	0	17,578
	93	20,497	4,746	340	0	2,010	0	27,593
	88	NA	NA	45,287	250	9,444	0	NA
o-Toluidine	95	0	90,297	45,218	20,406	55	0	155,976
	94	0	110,648	49,767	131,476	302	0	292,193
	93	0	41,913	29,039	86,591	56	0	157,599
	88	NA	NA	31,500	15,172	670	0	NA
Trichlorfon	95	0	0	0	0	0	0	0
	94	0	0	174	0	19	0	193
	93	0	0	272	0	0	0	272
	88	NA	NA	1,079	215	487	0	NA
1,2,4-Trichlorobenzene	95	10,541	107,929	345,503	82,831	41,648	0	588,452
	94	10,715	42,171	460,393	101,302	52,908	0	667,489
	93	520	30,930	623,111	168,814	18,276	0	841,651
	88	NA	NA	734,243	262,676	164,144	0	NA
1,1,1-Trichloroethane	95	3,742,913	1,011,715	1,270,886	23,122	124,363	0	6,172,999
	94	7,017,946	1,848,618	2,322,369	6,454	184,932	72,131	11,452,450
	93	14,596,869	2,334,469	3,602,293	60,463	274,009	1,901	20,870,004
	88	NA	NA	12,158,277	305,358	5,958,322	1,311,943	NA
1,1,2-Trichloroethane	95	11,918,217	200,626	3,251,456	9,000	84	0	15,379,383
	94	11,159,898	135,425	4,706,576	3,100	171	0	16,005,170
	93	12,136,563	23,308	3,995,573	1,600	592	0	16,157,636
	88	NA	NA	239,032	750	19,810	1,000	NA
Trichloroethylene	95	8,487,722	1,145,534	1,021,403	15,073	57,670	0	10,727,402
	94	8,294,181	1,203,719	2,380,087	50,325	95,095	363,668	12,387,075
	93	7,016,275	1,207,492	1,691,097	43,800	232,950	207	10,191,821
	88	NA	NA	4,691,284	85,652	1,466,469	352,114	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾
Continued.

CAS Number ⁽³⁾	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
95-95-4	2,4,5-Trichlorophenol	95	No Reports Received						
		94	No Reports Received						
		93	No Reports Received						
		88	1	1	90	0	0	0	91
88-06-2	2,4,6-Trichlorophenol	95	1	135	26	210	0	0	371
		94	1	116	83	65	0	0	264
		93	1	0	69	56	0	0	125
		88	3	0	250	50	12,000	0	12,300
1582-09-8	Trifluralin	95	23	13,318	3,826	92	0	8,250	25,486
		94	20	15,715	3,253	6	0	250	19,224
		93	17	12,185	5,475	10	0	5	17,675
		88	17	2,020	1,257	601	0	0	3,878
95-63-6	1,2,4-Trimethylbenzene	95	773	2,568,850	4,904,405	8,432	1,042	43,400	7,526,129
		94	762	2,629,069	5,210,218	9,163	187	14,957	7,863,594
		93	712	2,506,298	4,376,992	17,552	1,293	53,744	6,955,879
		88	291	2,021,568	2,336,949	10,088	7,964	61,583	4,438,152
51-79-6	Urethane	95	4	124	0	0	0	0	124
		94	4	11,050	0	0	0	0	11,050
		93	3	12,200	0	0	0	0	12,200
		88	11	140,500	4,623	0	0	0	145,123
7440-62-2	Vanadium (fume or dust)	95	15	1,397	3,952	5	0	30,632	35,986
		94	12	902	5,421	3,000	0	31,700	41,023
		93	13	4,779	6,411	3,200	0	36,000	50,390
		88	33	3,145	14,033	4,704	0	87,296	109,178
108-05-4	Vinyl acetate	95	155	1,068,111	2,756,124	8,269	783,829	1,717	4,618,050
		94	157	1,468,563	2,625,764	1,386	648,667	1,775	4,746,155
		93	156	1,195,872	3,094,840	1,344	1,408,698	1,626	5,702,380
		88	146	1,470,618	4,616,879	10,021	2,109,851	18,889	8,226,258
593-60-2	Vinyl bromide	95	2	43,460	11,470	0	0	0	54,930
		94	1	220	2,400	0	0	0	2,620
		93	2	257	1,400	0	0	0	1,657
		88	2	4,000	950	400	0	0	5,350
75-01-4	Vinyl chloride	95	48	319,592	722,011	525	33	1	1,042,162
		94	43	340,498	725,809	377	1	6	1,066,691
		93	45	312,117	708,068	277	0	6	1,020,468
		88	53	421,882	1,017,307	2,051	53	4,409	1,445,702
75-35-4	Vinylidene chloride	95	23	52,166	125,343	392	0	0	177,901
		94	22	35,324	130,372	215	0	0	165,911
		93	24	67,777	137,037	192	0	20	205,026
		88	21	104,552	191,801	3,462	170	429	300,414
108-38-3	m-Xylene	95	58	378,028	348,543	892	569	13,318	741,350
		94	57	691,694	289,548	893	250	2,708	985,093
		93	61	1,266,772	424,684	2,798	5	3,751	1,698,010
		88	68	1,480,104	982,939	2,566	0	18,045	2,483,654
95-47-6	o-Xylene	95	65	765,610	564,109	869	569	485	1,331,642
		94	75	910,531	492,003	1,148	250	2,959	1,406,891
		93	82	1,344,619	646,487	1,180	5	1,155	1,993,446
		88	66	1,613,292	628,522	2,786	250	22,461	2,267,311
106-42-3	p-Xylene	95	37	1,104,441	1,819,398	532	569	29,401	2,954,341
		94	41	808,400	2,612,682	9,690	250	587	3,431,609
		93	50	1,267,968	3,170,239	749	5	631	4,439,592
		88	48	1,737,827	4,340,922	3,200	0	49,226	6,131,175



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ³⁵ Pounds	Transfers to Energy Recovery ³⁶ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
2,4,5-Trichlorophenol	95	No Reports Received						NA
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA	0	0	20	0	
2,4,6-Trichlorophenol	95	0	0	0	0	0	0	0
	94	0	0	0	0	0	0	0
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	10	0	NA
Trifluralin	95	0	5	82,914	5	24,490	500	107,914
	94	0	0	11,252	250	23,116	0	34,618
	93	0	0	17,628	67	18,856	0	36,551
	88	NA	NA	149,989	371	40,557	0	NA
1,2,4-Trimethylbenzene	95	1,072,018	2,928,174	325,861	176,427	41,136	0	4,543,616
	94	1,125,700	2,345,494	258,012	110,864	54,271	0	3,894,341
	93	1,475,226	3,018,088	276,533	167,924	43,534	250	4,981,555
	88	NA	NA	330,046	501,717	200,616	38,117	NA
Urethane	95	0	0	0	1,165	3,750	0	4,915
	94	0	0	0	6,939	4,274	0	11,213
	93	0	0	0	5,900	46,360	0	52,260
	88	NA	NA	3,558	260	1,350	0	NA
Vanadium (fume or dust)	95	5,618	0	7	310	16,873	0	22,808
	94	7,336	0	33,476	0	7,938	0	48,750
	93	43	0	1,080	5	6,405	0	7,533
	88	NA	NA	1,858	0	91,559	0	NA
Vinyl acetate	95	533,326	6,534,074	8,913,415	274,652	41,783	0	16,297,250
	94	253,854	7,855,314	1,165,477	218,412	111,072	0	9,604,129
	93	826,452	8,465,964	1,484,282	300,254	28,055	34,000	11,139,007
	88	NA	NA	354,698	2,319,733	21,811	20,015	NA
Vinyl bromide	95	0	0	0	0	0	0	0
	94	0	0	0	0	0	0	0
	93	0	0	0	0	0	0	0
	88	NA	NA	0	0	0	0	NA
Vinyl chloride	95	134,144	20,853	80,223	308	15,645	0	251,173
	94	68,273	14,301	158,536	326	20,740	0	262,176
	93	151,324	11,613	25,360	343	18,091	0	206,731
	88	NA	NA	669,044	17,104	4,555	2,188	NA
Vinylidene chloride	95	55	102,442	86,499	301	260	0	189,557
	94	140	250	223,917	287	2,031	0	226,625
	93	5	8	162,129	201	1	0	162,344
	88	NA	NA	360,958	3,303	44,281	0	NA
m-Xylene	95	27,725	233,672	130,247	13,587	8,650	0	413,881
	94	30,573	45,869	8,847	3,331	150,720	0	239,340
	93	27,264	116,095	23,518	33,378	100,441	0	300,696
	88	NA	NA	113,311	19,708	107,746	115	NA
o-Xylene	95	60,208	1,848,523	465,724	381,025	1,152	0	2,756,632
	94	51,368	2,555,757	265,893	61,941	7,030	0	2,941,989
	93	8,554	1,882,351	29,362	22,262	51,219	0	1,993,748
	88	NA	NA	95,764	44,023	52,881	12,864	NA
p-Xylene	95	8,845	4,048	3,831	5,106	1,261	0	23,091
	94	1,991	19,608	3,669	1,457	3,295	0	30,020
	93	1,427	71,806	16,138	31,980	5,794	0	127,145
	88	NA	NA	48,320	752	31,108	0	NA



Table 5-15. Releases and Transfers of TRI Chemicals Reported, 1988, 1993-1995 (Alphabetically Ordered),⁽³⁾
Continued.

CAS Number ⁽⁵⁾	Chemical	Year	Total Forms Number	Fugitive or Nonpoint Air Emissions Pounds	Stack or Point Air Emissions Pounds	Surface Water Discharges Pounds	Underground Injection Pounds	Releases to Land Pounds	Total Releases Pounds
1330-20-7	Xylene (mixed isomers)	95	3,233	22,439,619	73,072,799	33,806	93,396	100,323	95,739,943
		94	3,397	25,412,061	84,461,701	44,074	313,711	242,009	110,473,556
		93	3,457	26,333,222	87,078,078	52,961	213,157	245,622	113,923,040
		88	3,466	34,911,226	123,806,558	204,480	144,728	558,257	159,625,249
87-62-7	2,6-Xylidine	95	4	54	221	0	0	0	275
		94	5	59	122	66	0	0	247
		93	5	83	27	387	0	0	497
		88	2	0	337	1,537	0	0	1,874
7440-66-6	Zinc (fume or dust)	95	420	757,286	1,251,878	53,264	0	6,402,741	8,465,169
		94	417	758,940	886,234	28,123	5	8,462,321	10,135,623
		93	424	832,469	849,876	67,508	0	10,449,577	12,199,430
		88	645	1,944,168	1,511,769	849,544	140,010	25,617,365	30,062,856
—	Zinc compounds	95	2,509	1,851,792	2,912,569	1,129,803	212,844	81,541,683	87,648,691
		94	2,482	1,832,470	3,051,240	1,436,923	267,498	75,086,851	81,674,982
		93	2,519	1,440,225	2,713,020	1,046,921	176,643	64,393,613	69,770,422
		88	1,651	3,242,880	4,005,822	1,200,784	109,555	113,363,711	121,922,752
12122-67-7	Zineb	95	1	0	0	0	0	0	0
		94	No Reports Received						
		93	No Reports Received						
		88	2	250	1,000	0	0	0	1,250
—	Mixtures and other trade name products	95	39	171,675	208,655	83,371	0	0	463,701
		94	52	190,044	13,732	23,120	0	3,442	230,338
		93	48	75,425	18,535	0	0	1	93,961
		88	174	628,029	2,822,591	59,210	0	16,099	3,525,929
—	Trade secrets	95	13	250	5	0	0	0	255
		94	17	0	470	0	0	0	470
		93	12	0	320	0	0	0	320
		88	5	0	0	0	0	0	0
Total		95	60,930	302,209,786	870,440,861	35,794,255	136,751,624	265,251,632	1,610,448,158
		94	62,923	349,634,925	914,282,535	39,974,880	114,170,231	282,797,978	1,700,860,549
		93	64,477	375,914,140	941,452,343	194,863,841	113,289,640	268,040,133	1,893,560,097
		88	62,638	679,933,826	1,496,777,923	164,466,515	161,939,132	459,231,827	2,962,349,223



Table 5-15, Cont.

Chemical	Year	Transfers to Recycling ³⁴ Pounds	Transfers to Energy Recovery ³⁵ Pounds	Transfers to Treatment Pounds	Transfers to POTWs Pounds	Transfers to Disposal Pounds	Other Off-site Transfers ³⁷ Pounds	Total Transfers ³⁸ Pounds
Xylene (mixed isomers)	95	43,833,814	70,575,100	14,954,567	531,491	894,676	25,055	130,814,703
	94	40,069,939	76,274,334	8,685,988	645,829	1,187,580	24,807	126,888,477
	93	36,905,163	70,894,778	6,970,921	655,678	999,436	11,201	116,437,177
	88	NA	NA	27,191,097	4,160,974	6,455,161	3,848,327	NA
2,6-Xylidine	95	0	0	22	236	0	0	258
	94	0	0	459	263	0	0	722
	93	0	0	625	0	0	0	625
	88	NA	NA	0	0	0	0	NA
Zinc (fume or dust)	95	78,719,849	29,564	6,464,257	34,668	3,525,346	0	88,773,684
	94	81,773,312	141,099	689,740	38,623	2,271,894	250	84,914,918
	93	76,544,708	101,557	661,883	34,894	2,085,557	500	79,429,099
	88	NA	NA	7,667,102	835,961	29,642,266	4,776,287	NA
Zinc compounds	95	228,004,256	397,958	10,603,153	545,830	97,510,725	3,570	337,065,492
	94	247,619,231	411,426	10,329,605	470,292	90,133,260	73,740	349,037,554
	93	211,312,502	281,395	10,875,026	526,123	83,786,361	252,428	307,033,835
	88	NA	NA	16,971,694	1,528,512	67,063,587	1,440,888	NA
Zineb	95	0	0	0	0	0	0	0
	94	No Reports Received						
	93	No Reports Received						
	88	NA	NA	250	0	2,600	0	NA
Mixtures and other trade name products	95	2,000	388,328	279,375	43,146	4,400	0	717,249
	94	16,656	29,231	74,132	2,149	11,498	1,450	135,116
	93	450,176	9,589	387,054	1,297	2,985	0	851,101
	88	NA	NA	749,408	186,938	10,661,927	190,046	NA
Trade secrets	95	0	0	0	0	0	0	0
	94	597,825	750	0	0	0	0	598,575
	93	397,675	0	221,020	0	0	0	618,695
	88	NA	NA	19,000	0	0	0	NA
Total	95	2,141,325,371	485,656,459	235,231,411	154,661,990	254,785,189	2,221,798	3,273,882,218
	94	2,168,766,870	455,461,086	217,216,579	158,464,603	259,376,987	3,421,283	3,262,707,408
	93	1,937,016,457	444,763,451	208,231,555	163,233,454	250,671,071	2,359,906	3,006,275,894
	88	NA	NA	369,160,080	254,722,925	386,183,255	42,859,210	NA

³⁴ Does not include delisted chemicals, chemicals added in 1990, 1991, 1994, and 1995, and aluminum oxide, ammonia, hydrochloric acid, and sulfuric acid.

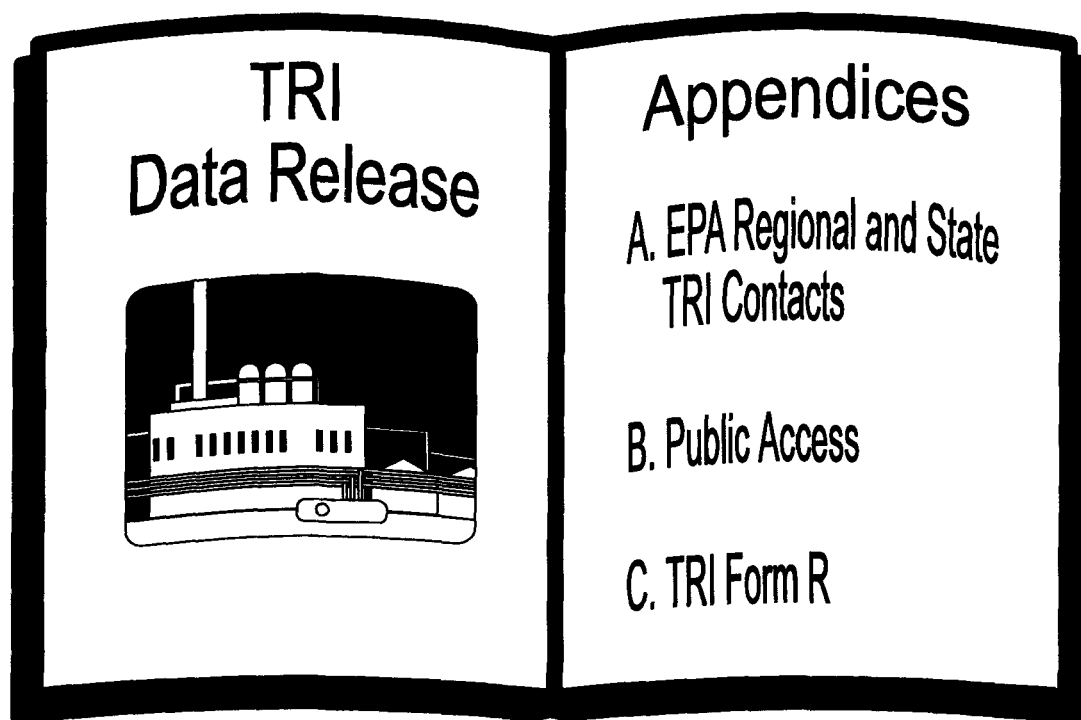
³⁵ Compound categories do not have CAS numbers (—).

³⁶ NA: Transfers for recycling or energy recovery were not required to be reported for 1988.

³⁷ For 1993, 1994, and 1995, transfers reported with no waste management codes or invalid codes. For 1988, transfers reported with no waste management codes, invalid codes, or codes not required to be reported in 1988.

³⁸ Because transfers for recycling or energy recovery were not required to be reported in 1988, total transfers in 1988 are not comparable to total transfers reported for 1993, 1994, or 1995.

Appendices



APPENDIX A

EPA REGIONAL OFFICE AND STATE TRI CONTACTS

EPA REGIONAL SECTION 313 COORDINATORS

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California

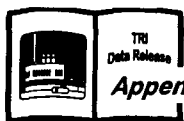
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Appendix A — EPA Regional and State Contacts

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North Carolina

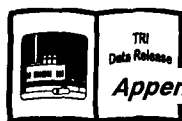
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P.O. Box 1304
Saipan, MP 96950
(670) 234-6984
Fax (670) 234-1003



Appendix A — EPA Regional and State Contacts

Ohio

Cindy DeWulf
Division of Air Pollution Control
P.O. Box 1049
1800 Watermark Dr.
Columbus, OH 43215-1099
(614) 644-3606
Fax (614) 644-3681

Oklahoma

Monty Elder
Department of Environmental Quality
Risk Communication
1000 Northeast Tenth St.
Oklahoma City, OK 73117-1212
(405) 271-1400
Fax (405) 271-1317

Oregon

Bob Albers, Manager
Hazardous Materials Section
Oregon Emergency Response Commission
c/o State Fire Marshal
4760 Portland Rd., Northeast
Salem, OR 97305-1760
(503) 378-3473, Ext. 262
Fax (503) 373-1825

Pennsylvania

Thomas J. Ward, Jr.
Bureau of Worker and Community Right-to-Know
Room 1503, Labor and Industry Bldg.
7th and Forster Sts.
Harrisburg, PA 17120
(717) 783-2071
Fax (717) 783-5099

Puerto Rico

Genaro Torres
Director of Superfund and Emergencies
Title III-SARA Section 313
Environmental Quality Board
Fernandez Junco Station
P.O. Box 11488
Santurce, PR 00910
(809) 766-2823
Fax (809) 756-5906

Rhode Island

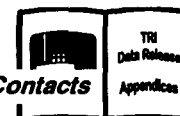
Karen Slattery
Department of Environmental Management
Division of Air Resources
Attention: Toxics Release Inventory
235 Promenade St.
Providence, RI 02908-5767
(401) 277-2808, Ext. 7030
Fax (401) 277-2017

South Carolina

Michael Juras
South Carolina SERV-EPCRA Reporting Point
Department of Health and Environmental Control
2600 Bull St.
Columbia, SC 29201
(803) 734-7236
Fax (803) 734-4556

South Dakota

Lee Ann Smith
South Dakota Emergency Response Commission
Department of Environment and Natural Resources
Joe Foss Bldg.
523 East Capitol
Pierre, SD 57501-3181
(605) 773-3296
Fax (605) 733-6035



Tennessee

Betty Eaves
Tennessee Emergency Response Council
Tennessee Emergency Management Agency
3041 Sidco Dr.
Nashville, TN 37204
(615) 741-2986
Fax (615) 741-4173

Texas

Becky Kurka, Supervisor
Office of Pollution Prevention and Recycling
Natural Resources Conservation Commission
P.O. Box 13087 (MC-112)
Austin, TX 78711-3087
(512) 239-3147
Fax (512) 239-3165

Utah

Neil Taylor
Utah Hazardous Chemical Emergency
Response Commission
Utah Department of Environmental Quality
Division of Environmental Response and
Remediation
P.O. Box 144840
Salt Lake City, UT 84114-4840
(801) 536-4102
Fax (801) 536-4242

Vermont

Paul Van Hollebeke
Vermont Department of Environmental
Conservation
Environmental Assistance Division
103 South Main St.
Waterbury, VT 05671-0411
(802) 241-3629
Fax (802) 241-3273

Virgin Islands

Austin Moorehead
Department of Planning and Natural Resources
Emergency Response Commission
Wheatly Shopping Center II
St. Thomas, VI 00802
(809) 773-0565 (St. Croix)
Fax (809) 773-9310 (St. Croix)
(809) 777-4577 (St. Thomas)
Fax (809) 693-0114 (St. Thomas)

Virginia

Cathy Harris
Virginia Emergency Response Council
Virginia Department of Environmental Quality
5th Floor
P.O. Box 10009
Richmond, VA 23240-0009
(804) 698-4489
Fax (804) 698-4346

Washington

Idell Hansen
Department of Ecology
Community Right-to-Know Unit
P.O. Box 47659
Olympia, WA 98504-7659
(360) 407-6727
Fax (360) 407-6715

West Virginia

Carl L. Bradford
West Virginia Emergency Response
Commission
West Virginia Office of Emergency Services
Main Capitol Bldg. 1, Room EB-80
Charleston, WV 25305-0360
(304) 558-5380
Fax (304) 344-4538



Appendix A — EPA Regional and State Contacts

Wisconsin

Wes Taylor
SARA Section 313 Coordinator
Department of Natural Resources
101 South Webster
P.O. Box 7921
Madison, WI 53707
(608) 264-6043
Fax (608) 267-5231

Wyoming

Bob Bezek
Executive Secretary of the State Emergency
Regulatory Commission
Wyoming Emergency Response Commission
5500 Bishop Blvd.
Cheyenne, WY 82009-3320
(307) 777-4900
Fax (307) 635-6017

APPENDIX B

PUBLIC ACCESS TO THE TOXICS RELEASE INVENTORY

According to many, the TRI program is one of the most effective environmental programs ever legislated by Congress and administered by EPA. Its success is due, in large part, to the right-to-know provisions contained in the legislation itself. By requiring that the resulting data be made publicly available "by electronic and other means," Congress ensured that citizens, the media, environmental advocates, researchers, the business community, and others could influence and evaluate industry's efforts to reduce toxics emissions.

Every year, EPA expands its outreach activities to include new potential users of the data. Through outreach activities, EPA identifies and engages the assistance of organizations to help promote TRI awareness, provide access, and increase data usage. Journalists, national and local public interest and environmental groups, and state governments continue to be key outreach participants. Libraries in communities all across the U.S., in particular, members of the Federal Depository Library Program, are committed to providing public access to TRI data in a variety of formats. Because the value of TRI increases as more people use it, EPA encourages these organizations to acquaint new users with TRI, help people who already know

about TRI to better use and understand the data, and, whenever possible, to provide feedback on how to improve TRI products and services.

Many different options are available for accessing TRI, and more are added every year. EPA offers the data in a variety of common computer and hard copy formats to ensure that everyone can easily use the information. TRI is available on diskette, CD-ROM, and computer bulletin boards. It is also available on an on-line national computer database. More and more TRI information is being added to the Internet. TRI reports are available from state government offices as well as from EPA. For each reporting year, many states make their data available before EPA releases data from the national database. You can contact your state EPCRA Coordinator or you can call your EPA Regional TRI Coordinator for assistance. (See listing of Regional coordinators and state EPCRA contacts in Appendix A.) Many other avenues for accessing TRI are described in the following pages.

TRI has proven to be a rich source of data for a broad public audience. For instance, educators are using the data to conduct studies and courses on the environment; labor unions are using the TRI data to improve conditions for workers; and businesses are using the data in many ways —



as a basis for reducing large stocks of toxic chemicals, to cut costs, to improve operations, to reduce the use of toxic chemicals, and for a variety of other reasons. Concerned citizens are a growing user group. These individuals, on their own and through organized groups, are using TRI to raise and answer questions about chemical releases in their communities. States use the national data to compare releases within industries.

Looking forward, avenues of public access to TRI will continue to grow, and TRI will continue to be an important first step for discovering which chemicals are being manufactured, released, or transferred in communities across the country. The diversity of the groups across the country who use TRI will also increase as will the varied uses of the data. TRI will increasingly become the data source used to positively influence the views of companies, legislators, and the public regarding the overall conditions of the nation's environment.

ACCESSING TOXICS RELEASE INVENTORY (TRI) PRODUCTS AND SERVICES

Assistance Services

Accessing TRI data is easy. It is published in a wide variety of computer and hard copy formats to ensure that it is readily available. Through outreach activities, EPA identifies organizations in the toxics community to help promote awareness of TRI and use of its data products. TRI data is available online, for purchase from GPO or NTIS, or for use in Federal Depository Libraries across the U.S. In addition, state officials also receive TRI reports from facilities in their jurisdiction, and many states publish reports highlighting local trends. For more information about accessing TRI or obtaining

TRI data products, call or write: TRI User Support, U.S. EPA, 401 M St. S.W. (MS: 7407), Washington, DC 20460, (202) 260-1531. Or, visit us at the TRI Web site:

<http://www.epa.gov/opptintr/tri>

The TRI-US Service provides general information about the Toxics Release Inventory and support for access to any of the data formats. TRI specialists can help determine the data product best suited for an individual user's needs. The service provides a comprehensive search assistance for the TRI on-line and CD-ROM applications. TRI-US provides both National Library of Medicine/TOXNET and CD-ROM training through individual sessions and workshops. Documentation for all TRI products is available from TRI-US. Copies of TRI reports are distributed as well. This support service provides referrals to EPA Regional and state TRI contacts and to the libraries where TRI is available. Referrals to TRI resources in other localities are also available.

- **TRI User Support Service (TRI-US)**

U.S. EPA
401 M Street, SW. (MS-7407)
Washington, DC 20460

Call: (202) 260-1531
Fax: (202) 401-2347
Email: tri.us@epamail.epa.gov
Hours: 8:00 a.m.- 4:30 p.m. (Eastern Time)

The **Emergency Planning and Community Right-to-Know (EPCRA) Hotline** provides regulatory, policy, and technical assistance to federal agencies, local and state governments, the public, the regulated community, and other interested parties in response to questions related to EPCRA. The Hotline provides information on the availability of documents related to EPCRA and copies of selected EPCRA documents on a limited basis.



For more information about the EPCRA Hotline, visit their Internet Web site at:
<http://www.epa.gov/epaoswer/hotline>.

- **EPCRA Hotline**

Call: (800) 535-0202
(703) 412-9810 (Washington Metropolitan area)
Fax: (703) 412-3333 (To request documents only)
TDD: (800) 553-7672
Hours: 9:00 a.m. - 6:00 p.m. (Eastern Time)

As a service to TRI data users, computer-generated facsimiles of TRI reporting forms will be provided upon request. Contact:

- **TRI Information Management Branch**

Attn: Tonya Richardson
Call: (202) 260-3757
Fax: (202) 260-4655

Federal Depository Libraries

TRI products are distributed through the Federal Depository Library Program, a network of 1,400 public and academic libraries located in communities all across the U.S. While librarians in these organizations are not specialists in TRI information, they are often quite knowledgeable about obtaining and using information resources in general. Over 700 depository libraries receive the TRI on CD-ROM. Librarians in these institutions can assist you in searching the database and using other features of the discs, such as printing reports and downloading data from the CD-ROM. More and more depository libraries are allowing patrons to access the Internet using public workstations located in the library.

For more information or to identify the Federal Depository Library nearest you, contact your local library. TRI User Support Service can also refer you to the closest Federal Depository Library that can provide access to TRI.

Electronic Media

CD-ROMs

This two-disc set contains the complete national TRI, starting with the first inventory in 1987. It also contains Chemical Fact Sheets that provide reference material on the health and environmental effects of TRI chemicals. User-friendly software provides the capability to search TRI data by facility, location, chemical, SIC code, and other data fields. Other features allow flexibility in printing standard and custom reports, data downloading, and calculating releases for search sets (for example, to calculate average air releases for all pulp and paper manufacturers). Complete documentation, outlining the history of TRI, how it is used, and how to operate the software is included. Discs available from the Government Printing Office and the National Technical Information Service are the same, although prices may differ.

For more information, contact:

U.S. Government Printing Office (GPO)

Superintendent of Documents
P.O. Box 371954
Pittsburgh, PA 15250-7954
Call: (202) 512-1800
Fax: (202) 512-2250
Hours: 8:30 a.m. - 4:00 p.m. (Eastern Time)

National Technical Information Service (NTIS)

U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
Call: (800) 553 6847
(703) 487-4650
Fax: (703) 321-8547
Email: info@ntis.fedworld.gov
Hours: 8:30 a.m. - 5:00 p.m. (Eastern Time)



Diskettes

Selected information from TRI reports submitted to EPA is available on diskettes in dBase (.dbf) format. For each state, one or more diskettes contain the most frequently used TRI data, such as the names, locations, and contacts for reporting facilities; chemical names and CAS numbers; aggregate releases in pounds of chemicals released to air, land, water, and underground injection wells; and total chemical transfers to off-site locations and publicly-owned treatment works. Diskettes for 1991 and later years also contain selected pollution prevention data. A diskette containing federal facilities nationwide is also available for reporting year 1995. Diskettes are accompanied by user instructions. The cost of diskettes for a single state varies, depending on the number disks in the set.

A new diskette product containing data extracted from TRI is scheduled for introduction in 1997. It is designed to assist data users who desire facility data but who have limited use for detailed release data or who prefer to access a data base organized by facility rather than by TRI report. TRI Facility Information diskettes will contain one record for each facility that submits one or more reports to TRI that provides the facility's name, address, and other information. Facility records will contain Standard Industrial Classification Codes indicating the type of manufacturing activities that required use of TRI chemicals. The chemical name, CAS No., and total release/transfer amount for up to 10 chemicals for each facility will also be provided. Data will be in dBase format. Self-extracting compression software will be used to pack data for the entire U.S. onto 3-4 diskettes.

For more information, contact:

U.S. Government Printing Office (GPO)
Superintendent of Documents
P.O. Box 37082
Washington, DC 20013-7082
Call: (888) 293-6498 (toll-free)
(202) 512-1530
Fax: (202) 512-1262
Hours: 7:00 a.m. - 5:00 p.m. (Eastern Time)

Online Services

National Library of Medicine (NLM) *TOXNET System*

The **National Library of Medicine (NLM) TOXNET System** makes TRI accessible to concerned citizens and to businesses and organizations interested in environmental or public health issues. TOXNET offers state-of-the-art, user-friendly, on-line searching. The system features a variety of on-line user assistance features, a flexible command language, and "free text" search capability. Users can print specific portions of the records either on-line or off-line, and there are a wide variety of customized text options built into the system. The menu-driven search package allows individuals with limited computer skills to use the TRI on-line database efficiently and effectively. The chemical fact sheets can also be accessed via the TOXNET system. On-line costs range from \$18-\$20 per hour. An NLM password is necessary to use the file. The system contains the complete national TRI data for all reporting years.

TOXNET is available on the Internet. The address for the file is toxnet@tox.nlm.nih.gov or visit NLM's Web site at:

<http://www.nlm.nih.gov/pubs/factsheets/trifs.html> for more information about accessing TRI on TOXNET.



For more information, contact:

National Library of Medicine
Specialized Information Services
TRI Representative
8600 Rockville Pike
Bethesda, MD 20894
Call: (301) 496-6531
E-mail: toxmail@tox.nlm.nih.gov
Hours: 7 days/week; 24 hours/day

Right-to-Know Computer Network (RTK NET)

The **Right-to-Know Computer Network (RTK NET)** offers free access to TRI data for 1987-1995, along with health facts for each TRI chemical, searchable through the World Wide Web, Telnet, and dial-up. RTK NET, operated jointly by the Unison Institute and OMB Watch, is an on-line telecommunications link to environmental and other databases. This service promotes pollution prevention by putting TRI data together with other prevention strategies. It provides communication among individuals concerned about toxics use reduction and seeks to increase use and analysis of TRI and related data. RTK NET links TRI with other environmental data, civil cases brought by the U.S. EPA, a portion of the 1990 Census data, and a mapping program called Landview.

The TRI data can be accessed through the World Wide Web (<http://www.rtk.net>), telnet ([rtk.net](telnet://rtk.net)), and by modem. (To access by modem, dial 202-234-8570, set computer parameters to 8, N, 1, and type "public" (no quotes) in lower case and register for a free account.) Participants can communicate with one another through computer-generated mail, in addition to exchanging and reviewing documents electronically.

In addition to the TRI data, the following databases on RTK NET may be of interest to TRI users:

- **ARIP** - EPA Accidental Release Information Program.
- **BRS** - EPA RCRA Biennial Reporting System.
- **NPRI** - Canada's TRI-like system, called the National Pollutant Release Inventory
- **Census Data by Zip Code**, linking 1990 U.S. Summary with TRI, FINDS, and BRS.
- **CERCLIS** - CERCLA "Superfund" Information System.
- **CUS** - EPA TSCA Inventory of chemical production database.
- **DOCKET** - EPA civil litigation and administrative actions
- **ERNS** - EPA Emergency Response Notification System.
- **FINDS** - Identifying information and location of all facilities regulated by EPA
- **NPL** - EPA Superfund National Priorities List of Sites
- **PCS** - EPA Water Permit Compliance System contains files on facilities, pipes, and pollutant limits
- **ROADMAPS** - Regulatory levels and health effects of TRI chemicals
- **RODs** - EPA Records of Decision
- **SETS** - EPA Superfund Site Enforcement Tracking System
- **USGS Water Use Database**

Training is available from the computer service on using telecommunications, using RTK NET, and searching the database.

For more information, contact:

RTK NET
c/o The Unison Institute
1742 Connecticut Avenue, N.W.
Washington, DC 20009-1171
Call: (202) 797-7200
Fax: (202) 234-8584
Email: info@rtk.net



EPA Internet Public Server

For TRI, like many other EPA programs, the Internet is fast becoming one of the best resources for identifying information that is available to the public. EPA manages a full service Internet site, offering access via the World Wide Web. (The World Wide Web server (<http://www.epa.gov>) is a graphical user interface allowing access not only to text but to images as well. Using a WWW program (or "browser," such as Netscape or Mosaic), users can access the Web site. Consult your system administrator for specific access procedures.) There is no cost for accessing the EPA public server or using any of the information that you find there.

The TRI home page (<http://www.epa.gov/opptintr/tri>) offers information useful to both novice and experienced users of the toxics community. It provides, in layman's terms, a description of what TRI is, how it can be used, a discussion of TRI and health issues, and much more. You can find out about TRI products, view or download the 1995 TRI data release reports, and identify who to contact for more information in EPA regions and states programs across the country. From the TRI home page, you can "link" to other EPA and non-EPA sites that allow you to search the TRI data base online. For example, another EPA Web site (http://www.epa.gov/enviro/html/tris/tris_overview.html) provides an easy-to-use format for querying TRI and several other EPA data bases interactively.

For more information on the EPA's Internet server, contact the Internet support group at the E-mail address:
internet_support@unixmail.rtpnc.epa.gov.

Integrated Risk Information System (IRIS)

The **Integrated Risk Information System (IRIS)** contains summaries of health risks and EPA regulatory information on over 500 specific chemicals. It is a key source for descriptive and quantitative information, such as oral reference dose and inhalation reference concentrations for chronic, noncarcinogenic health effects; oral slope factors and unit risk for chronic exposure to carcinogens; EPA drinking water health advisories; and summaries of EPA regulatory actions. The system is useful in the risk assessment process.

For online access, contact:

National Library of Medicine

TRI Representative
8600 Rockville Pike
Bethesda, MD 20894
Call: (301) 496-6531
Hours: 7 days/week; 24 hours/day

For diskettes, contact:

National Technical Information Service (NTIS)

U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
Call: (800) 553-6847
(703) 487-4650
Fax: (703) 321-8547
Email: info@ntis.fedworld.gov
Hours: 8:30 a.m. - 5:00 p.m. (Eastern Time)

Printed Media

TRI Information Kit

The TRI Information Kit is designed to acquaint a broad and disparate audience with the TRI. The information kit is appropriate for those familiar or unfamiliar with TRI. It contains a



brochure, bookmark, poster, and other explanatory materials. It is designed to answer the “who, what, when, why, where, and how” questions of TRI in clear, non-jargon language. The kit provides a broad explanation of TRI, as well as examples of how various groups have used TRI, where it can be accessed or obtained, and organizations that are sources for further information about TRI and the chemicals reported. Copies are free while supplies last. Request document number EPA-749-F-94-002.

To request copies, contact:

National Center for Environmental Publications and Information (NCEPI)

P.O. Box 42419
Cincinnati, OH 45242-2419
Call: (800) 490-9198
(513) 489-8190
Fax: (513) 489-8695

TRI User Support Service (TRI-US)

U.S. EPA
401 M Street, SW. (MS-7407)
Washington, DC 20460
Call: (202) 260-1531
Fax: (202) 401-2347
Email: tri.us@epamail.epa.gov
Hours: 8:00 a.m. - 4:30 p.m. (Eastern Time)

Public Data Release Reports

EPA assembles several detailed annual reports providing summaries, analyses, and comparison of TRI data by year. The reports summarize data on total releases and transfers of TRI chemicals; geographic distribution of TRI releases and transfers; industrial patterns of releases and transfers; the interstate and intrastate transport of wastes and other kinds of analyses. Copies are free while supplies last.

- 1995 Toxics Release Inventory: Public Data Release
- 1995 Toxics Release Inventory: Public Data Release State Fact Sheets

To request copies, contact:

EPCRA Hotline

Call: (800) 535-0202
(703) 412-9810 (Washington Metropolitan area)
TDD: (800) 553-7672
Fax: (703) 412-3333 (To request documents only)
Hours: 8:30 a.m. - 7:30 p.m. (Eastern Time)

TRI User Support Service (TRI-US)

U.S. EPA
401 M Street, SW. (MS-7407)
Washington, DC 20460
Call: (202) 260-1531
Fax: (202) 401-2347
Email: tri.us@epamail.epa.gov
Hours: 8:00 a.m. - 4:30 p.m. (Eastern Time)

Risk Screening Guide

“Toxic Chemical Release Inventory Risk Screening Guide” Method for evaluating TRI data for environmental managers. Vols. 1 and 2, July 1989. EPA Document No.: 560/2-89-002.

To order, contact:

National Technical Information Service (NTIS)

U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
Call: (800) 553-6847
(703) 487-4650
Fax: (703) 321-8547
Email: info@ntis.fedworld.gov
Hours: 8:30 a.m. - 5:00 p.m. (Eastern Time)



Appendix B — Public Access

Chemical Fact Sheets

OPPT is continuing to develop Chemical Fact Sheets as part of its effort to provide the public with information on chemicals. The goal is to provide information summaries that supplement environmental release information for TRI chemicals. Two types of summaries are available for each chemical. One is a two-page document providing a non-technical summary of chemical information. The other is a longer, referenced presentation of information that provides the basis for statements included in the shorter summary.

Both summaries provide the following information for each chemical:

- its identity and properties
- how it is used
- how exposure to it might occur
- what happens to it in the environment
- how it affects human health and the environment
- what EPA offices and other groups can be contacted for more information

Chemical Fact Sheets are now available for 40 high-production volume TRI chemicals. Another 60 are in various stages of OPPT review. Among the chemicals for which Fact Sheets are available are: methylene chloride (dichloromethane), toluene, acrylonitrile, perchloroethylene, methyl t-butyl ether, and styrene.

The Chemical Fact Sheets, their accompanying support documents, and a list of completed fact sheets can be found on the Internet at:

<http://www.epa.gov/chemfact>.

For more information contact:

TSCA Assistance Information Services Hotline

C/O: Garcia Consulting
401 M St. S.W. (Mail Code: 7408)
Washington, DC 20460
Call: (202) 554-1404
TDD: (202) 554-0551
Fax: (202) 554-5603

Chemicals, the Press, and the Public

This guidebook describes the evolution of the “right-to-know” concept and then provides key provisions of the Emergency Planning and Community Right to Know Act of 1986. A staple of environmental journalism since it was published in 1989, this guidebook offers information on how to use the chemical and emergency planning and response data available under this law, and how to understand and interpret the information responsibly and effectively.

The product number for *Chemicals, the Press, and the Public* is 12999-0000. For more information, contact:

National Safety Council (NSC)

Environmental Health Center
1025 Connecticut Ave. N.W., Suite 1200
Washington, DC 20036
Call: (800) 621-7619
Email: ehc@nsc.org

APPENDIX C

TRI FORM R FOR 1995

The 1995 Form R (a copy of which follows) is divided into two parts:

- **Part I (Facility Identification Information)**
contains information on such matters as name, address, parent company information and contact names and phone numbers for the facility.
- **Part II (Chemical-Specific Information)**
contains information such as chemical identity, facility activities and uses of the chemical, on-site release and transfer amounts, on-site waste treatment methods and efficiencies, and data on source reduction and recycling activities.

Readers who are interested in a more in-depth understanding of who is required to report to TRI and how to fill out the Form R, should refer to the EPCRA Information Hotline at 1-800-424-9346.

United States
Environmental Protection
Agency**FORM R** TOXIC CHEMICAL RELEASE
INVENTORY REPORTING FORMSection 313 of the Emergency Planning and Community Right-to-Know Act of 1986,
also known as Title III of the Superfund Amendments and Reauthorization Act

TRI FACILITY ID NUMBER

Toxic Chemical, Category, or Generic Name

**WHERE TO SEND
COMPLETED FORMS:**1. EPCRA Reporting Center
P.O. Box 3348
Merrifield, VA 22116-3348
ATTN: TOXIC CHEMICAL RELEASE INVENTORY2. APPROPRIATE STATE OFFICE
(See instructions in Appendix F)Enter "X" here if
this is a revision**IMPORTANT: See instructions to determine when "Not
Applicable (NA)" boxes should be checked.**

For EPA use only

PART I. FACILITY IDENTIFICATION INFORMATION**SECTION 1.****REPORTING
YEAR**

19 ____

SECTION 2. TRADE SECRET INFORMATION

Are you claiming the toxic chemical identified on page 3 trade secret?

2.1☐Yes (Answer question 2.2;
Attach substantiation forms)☐No (Do not answer 2.2;
Go to Section 3)**2.2**

If yes in 2.1, is this copy:

☐

Sanitized

☐

Unsanitized

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official

Signature

Date Signed

SECTION 4. FACILITY IDENTIFICATION

Facility or Establishment Name

TRI Facility ID Number

Street Address

City

County

State

Zip Code

Mailing Address (if different from street address)

City

State

Zip Code

PUT LABEL HERE



United States
Environmental Protection
Agency

EPA FORM R

PART I. FACILITY IDENTIFICATION INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER
Toxic Chemical, Category, or Generic Name

SECTION 4. FACILITY IDENTIFICATION (Continued)

4.2	This report contains information for: (Important: check a <u>or</u> b; check c if applicable)		a. <input type="checkbox"/> An entire facility		b. <input type="checkbox"/> Part of a facility		c. <input type="checkbox"/> A Federal facility	
4.3	Technical Contact	Name					Telephone Number (include area code)	
4.4	Public Contact	Name					Telephone Number (include area code)	
4.5	SIC Code (4-digit)	a.	b.	c.	d.	e.	f.	
4.6	Latitude and Longitude	Latitude			Longitude			
		Degrees	Minutes	Seconds	Degrees	Minutes	Seconds	
4.7	Dun & Bradstreet Number(s) (9 digits)				a.			
					b.			
4.8	EPA Identification Number(s) (RCRA I.D. No.) (12 characters)				a.			
					b.			
4.9	Facility NPDES Permit Number(s) (9 characters)				a.			
					b.			
4.10	Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)				a.			
					b.			

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of Parent Company	
	<input type="checkbox"/> NA	
5.2	Parent Company's Dun & Bradstreet Number	
	<input type="checkbox"/> NA	(9 digits)



United States
Environmental Protection
Agency

EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION

TRI FACILITY ID NUMBER

Toxic Chemical, Category, or Generic Na

SECTION 1. TOXIC CHEMICAL IDENTITY

(Important: DO NOT complete this
section if you complete Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
1.3	Generic Chemical Name (Important: Complete only if Part I, Section 2.1 is checked "yes." Generic Name must be structurally descriptive.)

SECTION 2. MIXTURE COMPONENT IDENTITY

(Important: DO NOT complete this
section if you complete Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
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SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY

(Important: Check all that apply.)

3.1	Manufacture the toxic chemical:	a. <input type="checkbox"/> Produce b. <input type="checkbox"/> Import	<u>If produce or import:</u> c. <input type="checkbox"/> For on-site use/processi d. <input type="checkbox"/> For sale/distribution e. <input type="checkbox"/> As a byproduct f. <input type="checkbox"/> As an impurity
3.2	Process the toxic chemical:	a. <input type="checkbox"/> As a reactant b. <input type="checkbox"/> As a formulation component	c. <input type="checkbox"/> As an article componen d. <input type="checkbox"/> Repackaging
3.3	Otherwise use the toxic chemical:	a. <input type="checkbox"/> As a chemical processing aid b. <input type="checkbox"/> As a manufacturing aid	c. <input type="checkbox"/> Ancillary or other use

**SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ON-SITE AT ANY TIME
DURING THE CALENDAR YEAR**

4.1	<input style="width: 50px; height: 20px;" type="text"/> (Enter two-digit code from instruction package.)	
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PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER

Toxic Chemical, Category, or Generic Name

SECTION 5. RELEASES OF THE TOXIC CHEMICAL TO THE ENVIRONMENT ON-SITE

			A. Total Release (pounds/ year) (enter range code from instructions or estimate)	B. Basis of Estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	<input type="checkbox"/> NA			
5.2	Stack or point air emissions	<input type="checkbox"/> NA			
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
5.3.1	Stream or Water Body Name				
5.3.2	Stream or Water Body Name				
5.3.3	Stream or Water Body Name				
5.4	Underground injections on-site	<input type="checkbox"/> NA			
5.5	Releases to land on-site				
5.5.1	Landfill	<input type="checkbox"/> NA			
5.5.2	Land treatment/ application farming	<input type="checkbox"/> NA			
5.5.3	Surface impoundment	<input type="checkbox"/> NA			
5.5.4	Other disposal	<input type="checkbox"/> NA			

☐

Check here only if additional Section 5.3 information is provided on page 5 of this form.



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PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER

Toxic Chemical, Category, or Generic Name

SECTION 5.3 ADDITIONAL INFORMATION ON RELEASES OF THE TOXIC CHEMICAL TO THE ENVIRONMENT ON-SITE

5.3	Discharges to receiving streams or water bodies (enter one name per box)	A. Total Release (pounds/year) (enter range code from instructions or estimate)	B. Basis of Estimate (enter code)	C. % From Stormwater
5.3.____	Stream or Water Body Name			
5.3.____	Stream or Water Body Name			
5.3.____	Stream or Water Body Name			

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTW)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1 Total Transfers (pounds/year)
(enter range code or estimate)

6.1.A.2 Basis of Estimate
(enter code)

6.1.B POTW Name and Location Information

6.1.B.____

POTW Name

6.1.B.____

POTW Name

Street Address

Street Address

City

County

City

County

State

Zip Code

State

Zip Code

If additional pages of Part II, Sections 5.3 and/or 6.1 are attached, indicate the total number of pages in this box and indicate which Part II, Sections 5.3/6.1 page this is, here.

(example: 1, 2, 3, etc.)



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PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER

Toxic Chemical, Category, or Generic Name

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2. _____	Off-site EPA Identification Number (RCRA ID No.)		
	Off-Site Location Name		
Street Address			
City		County	
State	Zip Code	Is location under control of reporting facility or parent company? <input type="checkbox"/> Yes <input type="checkbox"/> No	
A. Total Transfers (pounds/year) (enter range code or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)	
1.	1.	1. M	
2.	2.	2. M	
3.	3.	3. M	
4.	4.	4. M	

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2. _____	Off-site EPA Identification Number (RCRA ID No.)		
	Off-Site Location Name		
Street Address			
City		County	
State	Zip Code	Is location under control of reporting facility or parent company? <input type="checkbox"/> Yes <input type="checkbox"/> No	
A. Total Transfers (pounds/year) (enter range code or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)	
1.	1.	1. M	
2.	2.	2. M	
3.	3.	3. M	
4.	4.	4. M	

If additional pages of Part II, Section 6.2 are attached, indicate the total number of pages in this box and indicate which Part II, Section 6.2 page this is, here. (example: 1, 2, 3, etc.)



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PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER

Toxic Chemical, Category, or Generic Name

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

☐ **Not Applicable (NA)** - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Treatment Method(s) Sequence (enter 3-character code(s))	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data?
7A.01a	7A.01b 1 <input style="width: 40px;" type="text"/> 2 <input style="width: 40px;" type="text"/> 3 <input style="width: 40px;" type="text"/> 4 <input style="width: 40px;" type="text"/> 5 <input style="width: 40px;" type="text"/> 6 <input style="width: 40px;" type="text"/> 7 <input style="width: 40px;" type="text"/> 8 <input style="width: 40px;" type="text"/>	7A.01c	7A.01d	7A.01e
			x	Yes <input style="width: 20px;" type="checkbox"/> No <input style="width: 20px;" type="checkbox"/>
7A.02a	7A.02b 1 <input style="width: 40px;" type="text"/> 2 <input style="width: 40px;" type="text"/> 3 <input style="width: 40px;" type="text"/> 4 <input style="width: 40px;" type="text"/> 5 <input style="width: 40px;" type="text"/> 6 <input style="width: 40px;" type="text"/> 7 <input style="width: 40px;" type="text"/> 8 <input style="width: 40px;" type="text"/>	7A.02c	7A.02d	7A.02e
			x	Yes <input style="width: 20px;" type="checkbox"/> No <input style="width: 20px;" type="checkbox"/>
7A.03a	7A.03b 1 <input style="width: 40px;" type="text"/> 2 <input style="width: 40px;" type="text"/> 3 <input style="width: 40px;" type="text"/> 4 <input style="width: 40px;" type="text"/> 5 <input style="width: 40px;" type="text"/> 6 <input style="width: 40px;" type="text"/> 7 <input style="width: 40px;" type="text"/> 8 <input style="width: 40px;" type="text"/>	7A.03c	7A.03d	7A.03e
			x	Yes <input style="width: 20px;" type="checkbox"/> No <input style="width: 20px;" type="checkbox"/>
7A.04a	7A.04b 1 <input style="width: 40px;" type="text"/> 2 <input style="width: 40px;" type="text"/> 3 <input style="width: 40px;" type="text"/> 4 <input style="width: 40px;" type="text"/> 5 <input style="width: 40px;" type="text"/> 6 <input style="width: 40px;" type="text"/> 7 <input style="width: 40px;" type="text"/> 8 <input style="width: 40px;" type="text"/>	7A.04c	7A.04d	7A.04e
			x	Yes <input style="width: 20px;" type="checkbox"/> No <input style="width: 20px;" type="checkbox"/>
7A.05a	7A.05b 1 <input style="width: 40px;" type="text"/> 2 <input style="width: 40px;" type="text"/> 3 <input style="width: 40px;" type="text"/> 4 <input style="width: 40px;" type="text"/> 5 <input style="width: 40px;" type="text"/> 6 <input style="width: 40px;" type="text"/> 7 <input style="width: 40px;" type="text"/> 8 <input style="width: 40px;" type="text"/>	7A.05c	7A.05d	7A.05e
			x	Yes <input style="width: 20px;" type="checkbox"/> No <input style="width: 20px;" type="checkbox"/>

If additional copies of page 7 are attached, indicate the total number of pages in this box and indicate which page 7 this is, here. (example: 1, 2, 3, etc.)



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PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER

Toxic Chemical, Category, or Generic Name

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

☐ Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1

2

3

4

SECTION 7C. ON-SITE RECYCLING PROCESSES

☐ Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1

2

3

4

5

6

7

8

9

10



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PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI FACILITY ID NUMBER

Chemical, Category, or Generic Name

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

<i>All quantity estimates can be reported using up to two significant figures.</i>		Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1	Quantity released *				
8.2	Quantity used for energy recovery on-site				
8.3	Quantity used for energy recovery off-site				
8.4	Quantity recycled on-site				
8.5	Quantity recycled off-site				
8.6	Quantity treated on-site				
8.7	Quantity treated off-site				
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)				
8.9	Production ratio or activity index				
8.10	Did your facility engage in any source reduction activities for this chemical during the reporting year? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.				
	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)			
8.10.1		a.	b.	c.	
8.10.2		a.	b.	c.	
8.10.3		a.	b.	c.	
8.10.4		a.	b.	c.	
8.11	Is additional optional information on source reduction, recycling, or pollution control activities included with this report? (Check one box)				YES <input type="checkbox"/> NO <input type="checkbox"/>

* Report releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated on-site or off-site.